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ABSTRACT

A sample of 576 children participated in a study to determine the manner in which children retain narrative material, what information they retain, and the effects of sex and age upon these aspects of memory. The children, ranging in age from six to eight years, listened to a tape recorded story in individual sessions. Half of them were asked to retell the story immediately after hearing it and half were not. Each child was then assigned to an experimental condition consisting of an interval of two days, two weeks, or two months. Following the interval, the children were asked to retell the story. They were also asked a series of questions to identify material remembered but not included in their spontaneous recall. The results indicate that retelling a story immediately after hearing it facilitates subsequent recall. They further show that the focus of developmental change in narrative recall shifts as a function of age but not of sex. Analysis of the children's responses to questions posed after the designated interval suggests that the length of the interval had a decisive influence on the recall of specific detail. (Data gathering instructions and recording procedures and copies of the stories used in the study are appended.) (FL)

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A DEVELOPMENTAL STUDY OF THE RETENTION OF NARRATIVE MATERIAL

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July 1976

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The two original stories that were adapted for use in this study were written by Betty Boegehold. The stories were narrated by Betty Kulleseid.

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INTRODUCTION

Psychologists' efforts to study cognitive development seldom yield findings that are useful to educators and others who work with children. Cognitive functioning, as it occurs in nature, involves the interplay of a mass of different processes. In order to be secure in their analysis of what is observed, psychologists typically limit themselves to the study of the simple case under circumstances where they can exert control over most variables. Thus, most studies focus on tasks where the stimuli are specifiable and novel and the responses to be learned are relatively simple. Unitary processes, unaffected by previous experience, are the preferred phenomena to be studied. Although learning, thought, and memory are fundamentally interrelated processes, strenuous efforts are made to study them separately.

Whereas it was once assumed that the researcher's tendency to begin with the simple case and to gradually encompass greater complexity mirrors the way in which thought actually develops, Piaget has emphasized that even the earliest, most elementary intellectual processes entail some form of integrative action, and that development is characterized by qualitative changes in the way in which sensory events and thoughts are integrated. In this sense, then, the researcher's efforts to reduce cognitive phenomena to their simplest elements belie a level of complexity found even in the youngest child. Further, this style of investigation has not produced the clarity and certainty expected. The field remains mired in theoretical disputes involving alternative interpretations of even the simplest findings. Few studies generate useful new information and fewer still survive replication. Thus, the strategy of sacrificing the

opportunity to study cognitive development as it naturally occurs in all of its complexity for the sake of gaining greater precision and control has not produced the expected gains and has, as an additional side-effect, served to alienate those who work with and know children from the world of research.

The present study tries a different tack. It is primarily concerned with gaining access to cognitive functioning as it occurs naturally. We are interested in examining how children process and remember events which are characteristic of those they encounter in their day-to-day life. How do children encode and retain an episode that is aurally received? What do they record in their minds, how do they describe the episode, what do they exclude and what do they distort, and as time passes, what aspects of what they had heard do they still remember and how is what they heard transformed as it is stored and later retrieved? These questions are at the heart of a child's intellectual functioning. Because it entails cognitive functioning in all of its complexity--children's attention to and selection of stimuli, their understanding of language and utilization of previously acquired knowledge, their ability and style of remembering--this study is not aimed at providing a functional analysis of the role of individual cognitive dimensions. Instead it describes variations among children of different ages in their ability and style of processing a narrative and their patterns of retention after varying time intervals.

PRINCIPAL OBJECTIVES

Foremost among the objectives which governed the design of this exploratory study was our interest in learning something about how children remember discourse, that is, material that is meaningful and interconnected and attempts to convey a set of ideas.

Secondly, we were interested in spontaneous recall, in what children remember after varying intervals of time following exposure, when they are not asked

to memorize the original material and do not know that on some later occasion they will be asked to reveal how much they remember. While it may be claimed that studies of incidental learning measure this form of spontaneous memory, most procedures which assess incidental learning divert the child from the material on which his memory will be tested by asking him to attend to other aspects of the stimulus. Thus, incidental learning procedures really assess memory for irrelevant material. Our interest was in finding out what the child chooses to remember of material to which his attention is directed without, at the same time, being instructed to remember. We were also interested in how such material is encoded as well as stored, in how it is processed upon its first being heard.

We also sought to examine how these aspects of memory behave as a function of age. Gross differences in performance among very different age groups are generally predictable; they hardly need to be demonstrated. Rather, we wanted to study performance as a function of small differences in age so that our data might help to map the direction of development for a circumscribed age range, rather than merely to identify landmarks associated with quite distinct developmental stages. We selected three age groups--six, seven, and eight. They were chosen because they represent three successive educational levels, yet span a time period during which large amounts of demonstrable growth in intellectual competence take place. We assumed, also, that it would be possible to find stimulus material that would be equally meaningful to children throughout this age range.

We also investigated sex differences in performance. In addition, we examined whether the sex of the main character influenced how much is remembered. Would children attend to a story and better remember it if its protagonist is of a like sex, or of one sex rather than another?

Thus, this study was designed to provide preliminary answers to a series of questions concerning the nature of the development of the ability to recall narrative material:

> Do older children have a superior memory for narrative material than younger children? How are variations in performance associated with developmental factors? How is narrative recall, as studied under the conditions of this experiment, affected by the unit of analysis used to measure memory?
>
> Are differences in performance between older and younger children attributable to differences in their ability to register and process the material immediately upon hearing it or are they derived from differences in their ability to store material after it is learned and to gain access to it after it has been stored?
>
> How does the opportunity to retell a story immediately upon hearing it influence its subsequent recall? Does the opportunity for immediate recall increase or decrease variation in performance as a function of age? How lasting is the effect of immediate recall on later retention? Does its influence wane or does it increase with the passage of time?
>
> Are there sex differences in immediate and delayed recall of narrative material? Does the like sex/unlike sex of the main character affect children's learning and retention?

EXPERIMENTAL DESIGN AND PROCEDURE

The procedure called for each child, in individual sessions, to listen to a story on a tape played by the examiner. Half of the children were asked to retell the story immediately upon hearing it and half were not. Each child was assigned to an experimental condition consisting of an interval of either two days, two weeks, or two months. Following the interval, the child was asked to retell the story. The child was then asked a series of questions to test the limits of recall, i.e., to identify material remembered but not included in the child's spontaneous recall. Two different stories were used. Each story was constructed so that the sex of the main character, a child, could be alternated. Half of the children heard a story with a like-sex main character, and half with an opposite-sex main character. The total sample consisted of 576 children

equally distributed according to sex, age (six, seven, and eight years), story (two stories were used), experimental conditions--time interval (two days, two weeks, two months), immediate retell/no immediate retell, like sex/unlike sex of main character in a story. The experimental design is summarized in Table 1.

A distinguishing feature of this study's design is that the participating children were kept unaware of its main purpose. In contrast with most memory studies that investigate deliberate performance, in which the subject is told that he will have to recall material, this study disguised its objectives. Thus, it provides data on the nature of spontaneous memory behavior.

During the first of two individual sessions in which each S participated, the child was asked to listen to a taped presentation of a story. As noted, a bit of deception was used to arouse motivation and dispel any interest in practice or rehearsal. The task was introduced by telling each child to listen to a story and, afterwards, to tell the examiner whether he thought that it was a good story to be used with children his age. This ruse was employed to induce the children to attend to the story without suggesting that there would be a subsequent test of memory. By way of solidifying the diversionary tactic of story assessment, following the presentation of the story, each child was given a simple ballot to fill out indicating whether the story was a good one or not. After the child delivered his judgment, the examiner told the child that she had another story that she would like him to judge and that she would return another time to present the other story. There was one other element to the procedure which was administered to but half the Ss. Immediately upon hearing the story and prior to his judging its suitability, the child was parenthetically asked by the examiner to retell the story.[1]

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[1]The exact procedures for testing and interrogating the children as well as recording their behavior in the course of each session are given in Appendix A.

Table 1

Outline of Experimental Design for Each of Two Replications, Using Different Stories

		Length of Time Interval Between Session I and Session 2												
		Two Days				Two Weeks				Two Months				
		With Immediate Retell		Without Immediate Retell		With Immediate Retell		Without Immediate Retell		With Immediate Retell		Without Immediate Retell		
Age	Sex	M*	F*	M	F	M	F	M	F	M	F	M	F	Total
8	Boys	4	4	4	4	4	4	4	4	4	4	4	4	48
	Girls	4	4	4	4	4	4	4	4	4	4	4	4	48
7	Boys	4	4	4	4	4	4	4	4	4	4	4	4	48
	Girls	4	4	4	4	4	4	4	4	4	4	4	4	48
6	Boys	4	4	4	4	4	4	4	4	4	4	4	4	48
	Girls	4	4	4	4	4	4	4	4	4	4	4	4	48
Total		24	24	24	24	24	24	24	24	24	24	24	24	288

*M = main character is a boy; F = main character is a girl.

At the outset of the second session, scheduled according to the preassigned time interval, the child was told that we were interested in having him listen to a second story and then pass judgment on it as he had with the first story on the previous session. But before the tape of the second story was played and its evaluation recorded by ballot, the examiner asked the child to retell as much of the previously heard story as he could remember. Following the child's retelling of the story, he was asked a standard series of factual questions about it. The retell of the story was requested and the questions raised as an expression of our interest in the child's reaction to the story; the fact that we were interested in memory of the story was never made explicit and seems for the most part to have been effectively concealed. The questions were designed to test the limits of recall, to establish whether certain elements of content were remembered even though the child did not include them in his retell of the story. Each session was tape recorded and later transcribed.

The two stories used in the study were written especially so that the main character in each story could be of either sex. We elected to use two different stories in order to be able to assess the generality of results. Our main concern was that the stories should be interesting to all three age levels in the sample. We also sought stories that were not too fanciful, that described real people and events which might actually occur in a child's life, that were episodic, that is, that had some complexity, that involved a sequence of events occurring at different times and places, and that included references to affective experiences and conflicts because we were especially interested in the memory of affect-laden material. We also arranged for the stories to include a certain amount of very trivial detail so that we would be able to distinguish between memory of essential and non-essential content. Each of the taped stories, about 1600 words in length, took approximately nine minutes to play.

Their full text is given in Appendix B.

The data for each of the four replications of the experiment (with each of the two stories) were gathered in a different school. In each replication or experimental cycle, the data were gathered by the same examiner. In each replication, for a given age group, the data for each different interval were gathered from the same class. Thus, the design called for the participation of three classes (each assigned to a different interval) from each of the first three grades. By arranging for only eight children from each classroom to participate in the study, all of whom were assigned to the same interval group, it was possible to gather all our data for a given session on the same day, thereby minimizing the opportunity for classmates to communicate details of the experimental procedure to each other prior to participating in the study.

The data consist of transcriptions of the children's retelling of the stories and their answers to the questions that followed the post-interval retell. They have been coded in terms of amount of information recalled (based on both a molecular and molar analysis of content), and assessed qualitatively by means of a series of rating scales.

RESULTS AND DISCUSSION

A. Quantitative Analysis of Data

1. Recall as a Function of Age and Interval

a. Major Elements[1]

(1) Immediate Recall

The immediate recall of eight-year-olds was highest and that of six-year-olds lowest in both stories (see Table 2 and Figure 1). However, whereas in Story S, the means of the three age groups are approximately equal distance from each other, in Story B the mean of the eight-year-olds surpasses the others by a large margin.

The immediate recall mean for different interval groups shown in Table 2 indicates the magnitude of sampling variation in performance. The range of group means is considerably greater among six-year-olds than it is among the older age groups. There is overlap between the mean immediate retells of sixes and sevens in both story groups but none between sevens and eights. The performance of six-year-olds shows a wider range of individual differences than that of the older groups. This pattern of greater variability among six-year-olds may simply reflect the fact that their performance is least constrained by ceiling effects, or it may represent an intrinsic developmental characteristic.

(2) Post-Interval Recall

The sharp decline in recall among the eight-year-olds (see Figure 1) from the level achieved at immediate retelling contrasts with the more gradual decline among six- and seven-year-olds. When recall after two weeks is compared with recall after two days, the sevens and eights show a gradual loss, whereas the six-year-olds' performance drops sharply. The difference between recall

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[1]Appendix C gives the 25 thematic elements abstracted from each of the two stories.

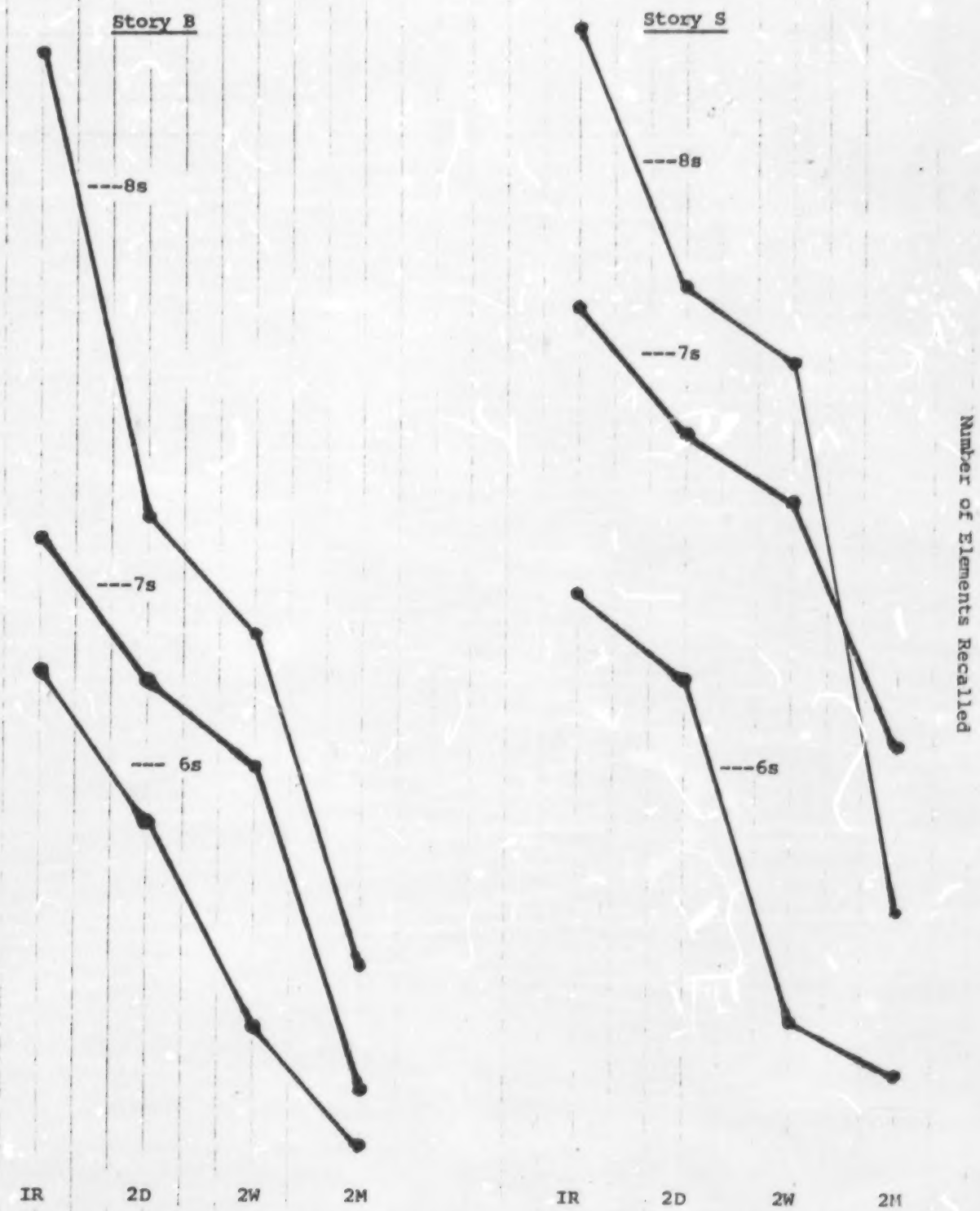
Table 2

Mean Number of Major Elements Recalled
by Age and Recall Interval (N=16)

Story B						Story S					
		Recall Interval						Recall Interval			
Condition	Age	2D	2W	2M	$\bar{X}$	Condition	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	16.7	15.3	15.1	15.7	Immediate Retell	8	17.2	15.8	16.3	16.4
	7	10.6	11.7	12.2	11.5		7	13.8	14.5	14.1	14.1
	6	7.2	12.3	11.4	10.3		6	13.9	10.5	10.4	11.6
	$\bar{X}$	--	--	--	12.5		$\bar{X}$	--	--	--	14.1
Post-Interval (with IR)	8	15.8	12.2	10.2	12.7	Post-Interval (with IR)	8	17.9	15.5	11.1	14.8
	7	12.9	10.7	10.0	11.2		7	13.3	13.4	11.1	12.6
	6	7.7	10.0	8.2	8.7		6	12.6	10.4	8.6	10.5
	$\bar{X}$	12.2	11.0	9.5	10.9		$\bar{X}$	14.6	13.1	10.3	12.7
Post-Interval (w/out IR)	8	11.7	10.6	7.7	10.0	Post-Interval (w/out IR)	8	14.3	13.6	8.9	12.3
	7	10.2	9.5	6.6	8.8		7	12.6	12.4	10.3	11.8
	6	9.0	7.2	6.1	7.4		6	10.9	7.9	7.4	8.8
	$\bar{X}$	10.3	9.1	6.8	8.7		$\bar{X}$	12.6	11.3	8.9	10.9

Figure 1

Recall of Major Elements in the Stories by Age and Recall Interval



(N=48 for IR group, N=16 for each post-interval group--2D, 2W, 2M)

after two days and after two weeks is much greater for the six-year-olds than it is for the seven- and eight-year-olds. A comparable decline in recall for the two older age groups occurs after, rather than before, the two-week interval, i.e., between two weeks and two months. At this point, the six-year-olds' performance has leveled off; they show comparatively little decline in recall between two weeks and two months.

Among sevens and eights, the difference between what they remember after two days and what they remember after two weeks is less than the difference between their immediate recall and what they recall after two days. The decline in what is recalled is sharper for sevens and eights during the first two days following hearing a story than it is during the 12 days which follow a point two days after hearing the story. Especially among sevens the difference between performance after two days and after two weeks is hardly discernible.

The difference in recall between seven- and eight-year-olds following the two-week interval tends to be very small and becomes progressively smaller thereafter. In Story S, the relative position of the two groups is actually reversed following the two-month interval.

b. Information Units[1]

(1) Immediate Recall

The subdivision of the story into information units makes possible a more molecular level of analysis. These more numerous units vary in the importance of their content from obscure and/or non-essential elements of the narrative to highly salient bits of information. The superiority of eight-year-olds in immediate recall is even more pronounced in the information unit analysis (see Table 3 and Figure 2). These findings, based on the sheer number of information

[1]The listings of all information units for each story are given in Appendix D.

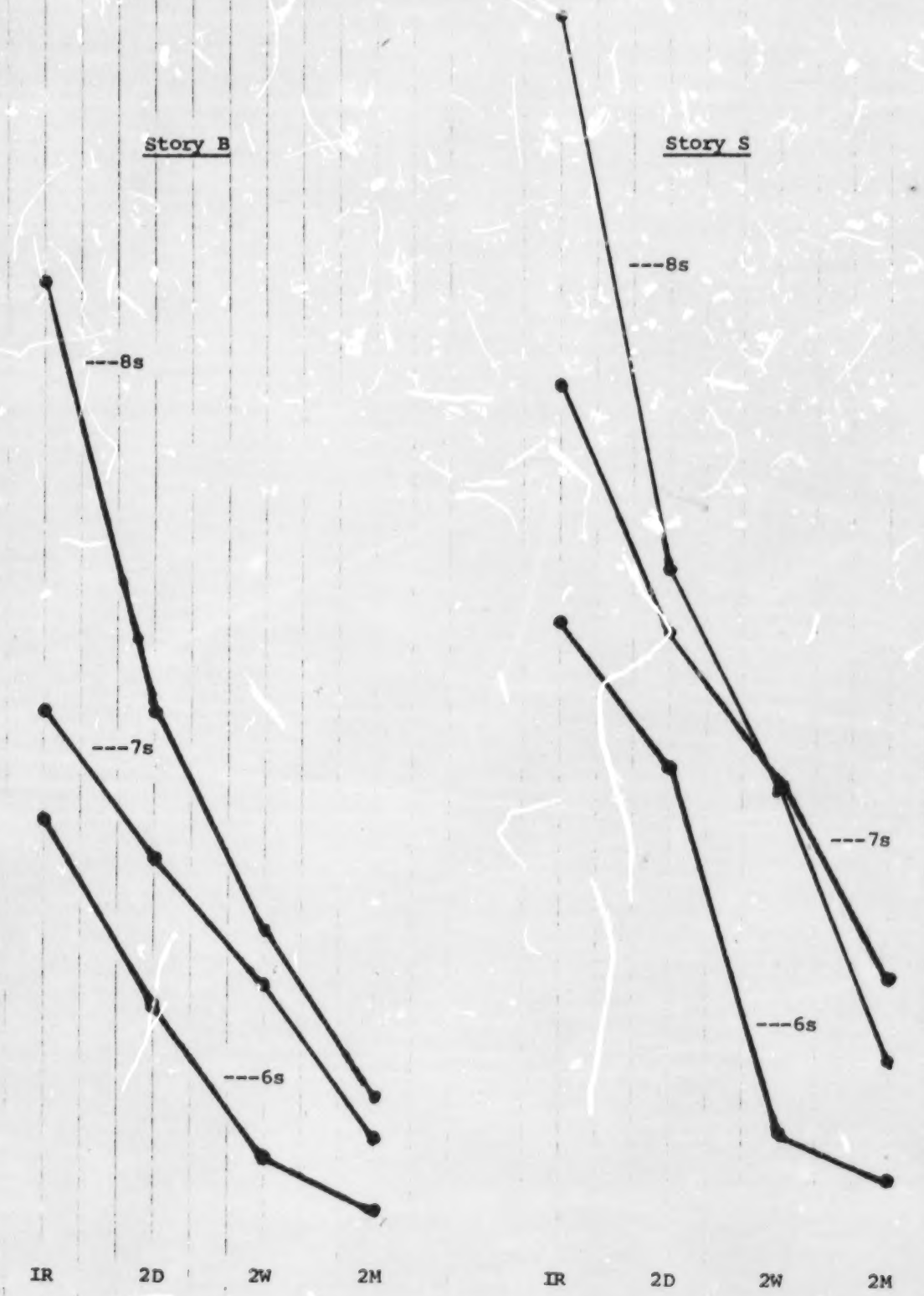
Table 3

Mean Number of Information Units Recalled
by Age and Recall Interval (N=16)

Story B						Story S					
		Recall Interval						Recall Interval			
Condition	Age	2D	2W	2M	$\bar{X}$	Condition	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	58	52	47	52	Immediate Retell	8	67	64	60	64
	7	31	36	36	34		7	50	49	45	48
	6	20	37	32	30		6	48	32	33	38
	$\bar{X}$	--	--	--	39		$\bar{X}$	--	--	--	50
Post-Interval (with IR)	8	51	34	25	37	Post-Interval (with IR)	8	68	51	26	49
	7	34	29	25	29		7	47	39	26	37
	6	19	22	17	19		6	44	27	17	30
	$\bar{X}$	35	28	22	29		$\bar{X}$	53	39	23	39
Post-Interval (w/out IR)	8	34	25	18	25	Post-Interval (w/out IR)	8	40	31	19	30
	7	28	22	16	22		7	37	31	23	30
	6	22	15	13	16		6	32	16	14	21
	$\bar{X}$	28	21	15	21		$\bar{X}$	36	26	19	27

Figure 2

Recall of Information Units in the Stories by Age and Recall Interval



(N=48 for IR group, N=16 for each post-interval group--2D, 2W, 2M)

units immediately recalled, appear to suggest that the greater immediate recall of eight-year-olds is not limited to retention of organized, meaningful units of the narrative. Rather it extends to memory of discrete bits of information as well.

The much greater variability of six-year-olds is again apparent. Once more there is not even a suggestion of overlap among the mean immediate recall scores for sevens and for eights; they clearly represent distinct levels of performance. Yet group means of sixes overlap with those of sevens.

(2) Post-Interval Recall

Following the two-week interval, the bunching of performance levels for the seven- and eight-year-olds at a point substantially above that of the six-year-olds is even more apparent in the information unit analysis. As in the case of the major element data, the mean recall scores for the three age groups are not as far apart from each other at the two-month point as they are at the two-week point. The sevens and eights retain much more after two weeks than do the sixes. In both Figures 1 and 2, the curves for the six- and seven-year-old groups tend to be parallel except for the widening of the gap at the two-week recall point.

The curves for the seven- and eight-year-olds are farthest apart at the point of immediate recall. With the passage of time, the curves of retention for the seven- and eight-year-olds tend to converge. Following the two-week interval, the mean number of information units recalled by seven- and eight-year-olds is virtually identical.

The superiority of immediate recall among eight-year-olds is even more marked when information units are used to measure retention. Unlike the pattern observed with major elements, where declines in retention among seven- and eight-year-olds tend to be small between two days and two weeks and then drop

off sharply, forgetting of information units proceeds at a steadier pace following the two-day interval. The decline in retention of information units in seven- and eight-year-olds is no greater between two weeks and two months than it is between two days and two weeks.

Not unexpectedly, the rate of forgetting of information units is much greater than the rate of forgetting of major elements. By comparing the mean recall score for each age group after two months with the means of the immediate retells of each age group, one may observe the rate of forgetting over a two-month period. It is apparent that the attrition in retention is much greater for information units than it is for the more integrative units--major elements.

One method of analyzing the performance obtained at different developmental levels is to examine equivalences and differences in retention obtained under different conditions. For example, eights recall approximately as many major elements after two days as sevens recall immediately upon hearing a story. Similarly, the recall of sevens after two days approximately matches the immediate retells of sixes. Eight-year-olds remember slightly more after two weeks than sevens do after two days or sixes recall immediately. After two months, eight-year-olds do not remember as much as sevens after two weeks, but they remember more than sixes after two weeks but not as much as sixes remember after two days.

Age differences in performance appear not to be as great when recall is measured in terms of information units. Eight-year-olds after two days remember as much as seven-year-olds upon immediate recall in only one of the two stories (B). However, eights recall more information units after two days than do sixes immediately and sevens recall almost as many units after two days as do sixes immediately. After two weeks, the recall of information units by eights is

roughly equivalent to that of sixes after two days.

The relative influence of age and of recall interval on memory may be examined by comparing the recall of variance associated with age with the variance associated with recall interval. The range of means for age groups and those obtained for recall intervals provide indices of the relevant variance. In the case of major elements, these ranges appear to be essentially the same. When information units are considered, the range of interval means is slightly larger than the comparable range of age means. Thus, within the framework of this study, variation in age has a less decisive effect on retention of information units than on the retention of major elements.

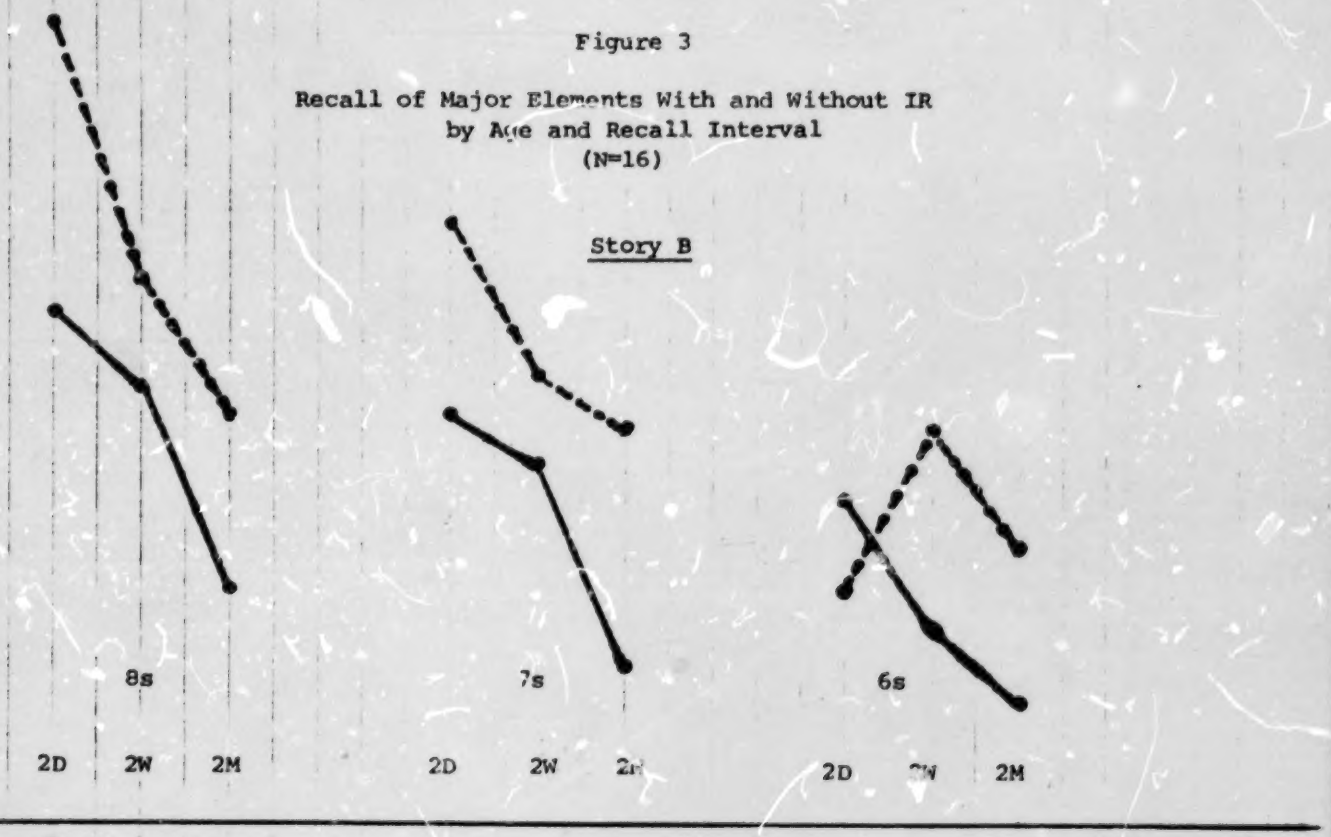
2. The Effect of Immediate Recall

The effect of immediate recall of a narrative upon its subsequent retention is shown in Figures 3 and 4 and Tables 2 and 3. The opportunity for children to recall the story immediately upon hearing it very substantially facilitated subsequent memory of it. The retention of children with immediate recall exceeded that of children without immediate recall under virtually all experimental conditions. Only the anomalous results obtained with the six-year-olds in recall after two days, which would appear to be the result of a sampling accident, are an exception to this clearcut pattern. The overall mean for children with IR is midway between the mean of their own immediate retell and the mean of children without IR for both stories and both units of analysis (see Tables 2 and 3).

The largest impact of immediate recall for all groups is shown in the post two-day interval recall of eight-year-olds. Following longer intervals, the advantage of immediate recall among eight-year-olds dwindles to the general level found at the six- and seven-year levels. It continues to last, however, throughout the intervals studied. When major elements are studied, especially

Figure 3

Recall of Major Elements With and Without IR
by Age and Recall Interval
(N=16)



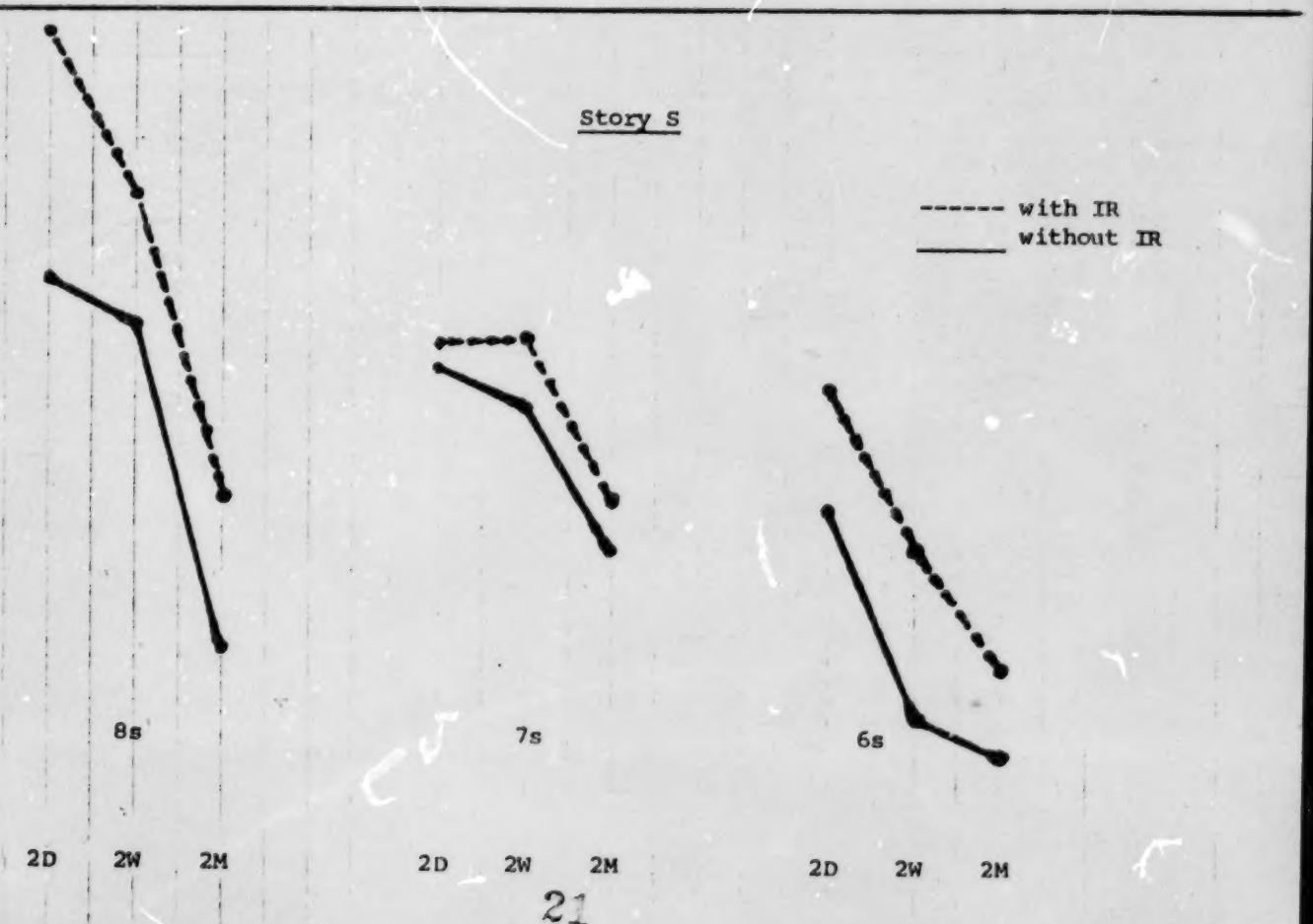
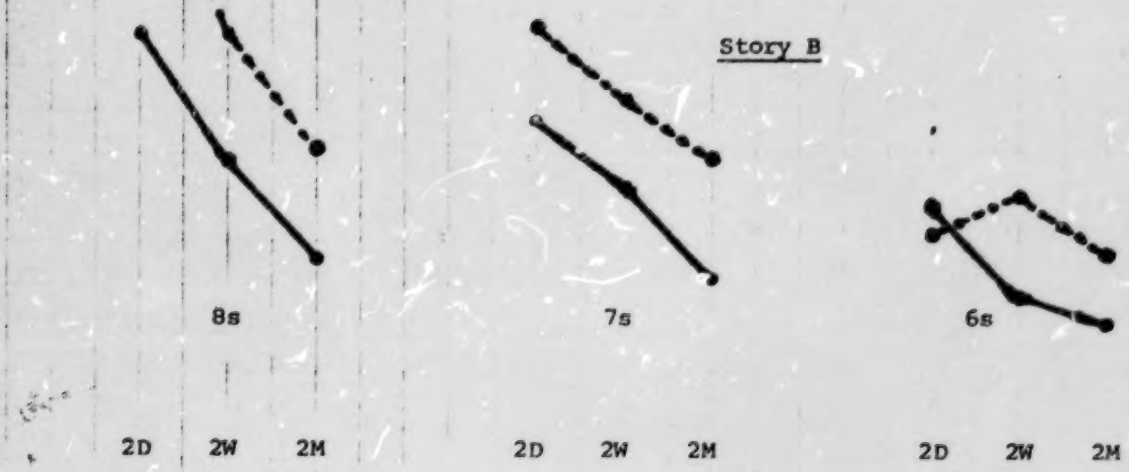
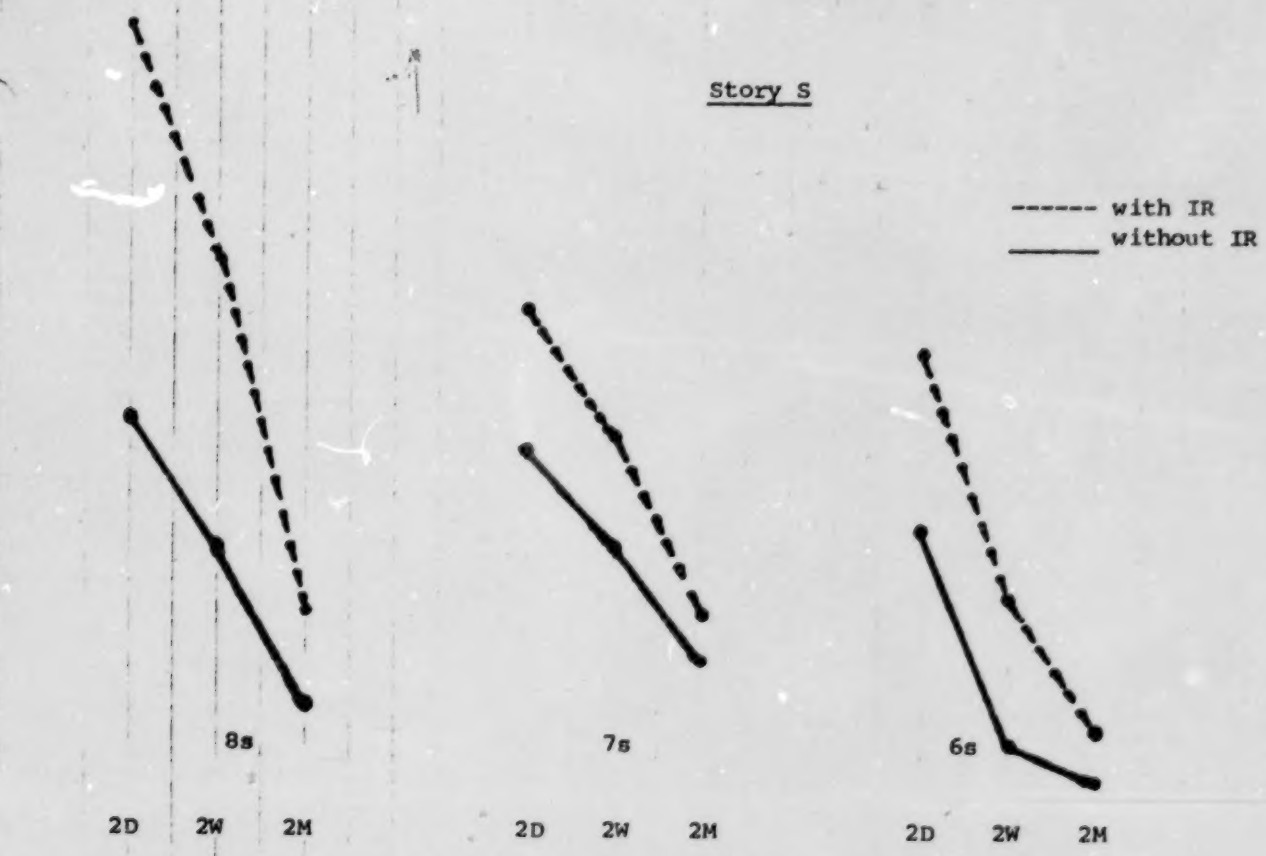


Figure 4

Recall of Information Units With and Without IR
by Age and Recall Interval
(N=16)





in the case of Story B, the effect of IR is greater after two months than after two weeks. The effect of immediate recall on retention after a two-month interval appears to be somewhat greater for memory of major thematic elements than for information units. The influence of experiencing immediate recall appears to last longer when memory is measured in terms of more integrative units of the stimulus material.

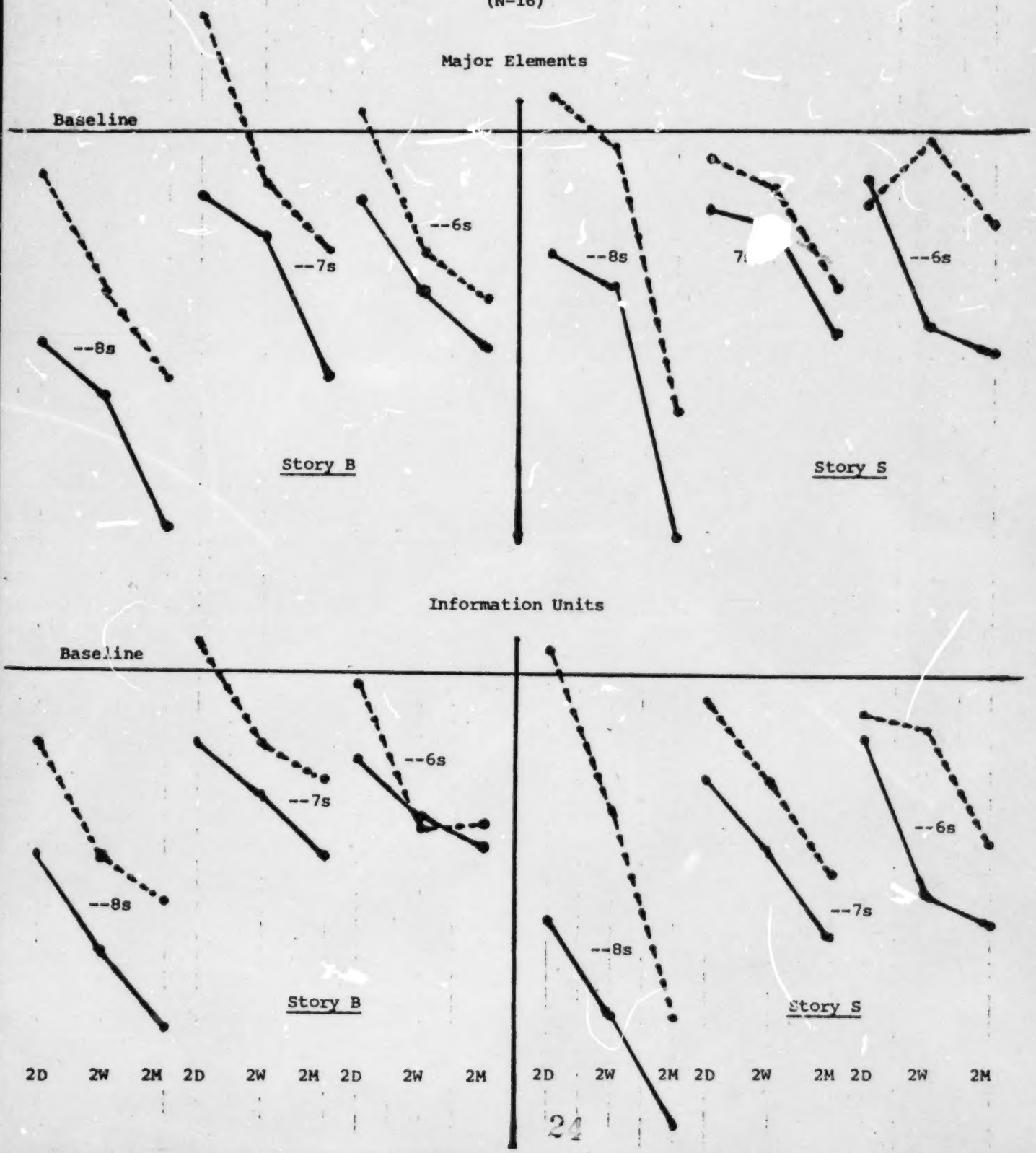
Another way to examine the data thus far reported is to focus on how much is forgotten with the passage of time. Figure 5 presents the decline in major elements experienced by each age group after intervals of two days, two weeks, and two months. In these figures the data are presented as deviation scores from the immediate recall score of their group. Recall following intervals is examined in terms of a baseline defined by the relevant immediate recall score. The deviation score of groups who had engaged in immediate recall is based upon their own actual IR score; for these groups we have a within-subjects design. The deviation scores of groups without immediate recall are based upon the mean IR score for all groups (day/week/month) of their own age level.

The data presented in Figure 5 again emphasize that the opportunity to engage in immediate recall in almost every case results in less forgetting. In addition, in all groups, when post-interval retention is measured in relation to immediate recall, the eight-year-olds consistently show the greatest declines in retention. In a sense, the eight-year-olds remember the most and forget the most. In the groups without IR, the losses after a two-day interval are about the same for the six- and seven-year-olds. There is a greater decline for the six-year-olds than for the seven-year-olds after two weeks, but the two groups show the same amount of decline at the end of the two-month interval.

The post-interval recall of some of the groups with IR provide some evidence for what has in the past been referred to as reminiscence phenomena. As

Figure 5

Recall With and Without IR by Age and Recall Interval Using the IR Score as the Baseline for Recording Declines in Post-Interval Recall (N=16)



is shown in Figure 5, the sevens and sixes in Story B and the eights in Story S recalled more major elements after two days than they did in their immediate retell. Except for the sixes in Story B, a similar rise in retention occurred with information units. This interesting pattern may simply be an artifact of a somewhat more intensive level of probing conducted by the examiner during the post-interval session. Since this was the last session with each child, the examiner could afford to more strongly urge children to respond to the task of retelling a story. Whether or not these data may be interpreted as demonstrating that retention of a narrative may actually improve with the passage of time, they, at the very least, highlight how the opportunity to retell a story immediately serves to forestall the large decline in retention which normally occurs after an interval as short as two days.

Another way to assess the effect of immediate retelling of a story on subsequent retention is to compare the recall of seven-year-olds with IR with eight-year-olds without IR. The data in Tables 2 and 3 indicate that sevens with IR tend to outperform eights without IR in many cases; the two groups of scores are never very far apart. In Story B, sevens with IR retain as much or more major elements and information units than eights after every interval; the two groups are essentially equivalent in their retention of major elements.

The data obtained from children with IR also contribute to confirming a trend suggested by the findings of children without IR. Irrespective of whether retention is measured by major elements or information units, the recall of seven- and eight-year-olds is equivalent following an interval of two months. The curves of retention of sevens and eights converge at a point two months after a story was first heard.

3. Sex Differences in Recall

Data bearing on the difference between the recall of boys and girls are summarized in Table 4. For the most part, they indicate a notable absence of any pattern of sex difference in performance. Girls outperformed boys by a very slight margin in the immediate recall of Story B, but this pattern was exactly reversed in Story S. Nor are there sizable or consistent sex differences in immediate recall as a function of age.

Similarly, the post-interval recall of boys without IR was slightly larger than that of girls in Story B but smaller by the same slim margin in Story S. The post-interval recall of children without IR appears to suggest that girls remember more after short intervals (two days) and boys remember more after long intervals (two months), but this pattern is all but reversed in the post-interval recall of children with IR. The post-interval recall data suggest the existence of small sex differences with age, but the pattern is inconsistent. Among children with or without IR, boys tend to recall slightly more than girls at age seven and girls consistently recall more than boys at age eight.

4. Match Between the Sex of Subject and Sex of Main Character in Story

The data bearing on this issue are summarized in Table 5. They indicate that the group means for like-sex and unlike-sex main character-subject combinations were virtually identical. No consistent differences were found either in immediate or post-interval recall or in retention as a function of interval length or age. Clearly, the results of this study indicate that the sex of the main character of our stories has no perceptible influence on its recall by either boys or girls. But it should be noted that the stories were constructed so that their themes were equally salient to main characters of either sex. It remains to be seen how children would remember stories especially directed at the interests of their opposite sex. The stories used in

Table 4

Sex Differences in Recall of Major Elements
(N=24)

Condition		Sex	Recall Interval			Age			Total
			2D	2W	2M	6	7	8	
Immediate Retell	Story B	B	11.2	12.7	12.0	9.9	11.0	15.0	12.5
		G	11.8	13.5	13.8	10.7	12.0	16.3	13.0
	Story S	B	15.7	13.6	14.0	11.5	14.8	16.9	14.4
		G	14.3	13.6	13.2	11.7	13.4	16.0	13.7
Post-Interval (with IR)	Story B	B	11.7	10.9	8.9	8.5	11.0	12.1	10.5
		G	12.6	11.0	10.1	8.9	11.5	13.4	11.2
	Story S	B	15.2	13.0	9.7	10.4	12.8	14.7	12.6
		G	14.0	13.2	10.8	10.6	12.4	15.0	12.7
Post-Interval (w/out IR)	Story B	B	10.0	9.2	7.6	7.7	9.3	9.7	8.9
		G	10.7	9.0	6.1	7.2	8.3	10.3	8.6
	Story S	B	12.2	10.4	9.6	8.8	12.1	11.3	10.7
		G	13.0	12.2	8.1	8.6	11.5	13.2	11.1

Table 5

Recall as a Function of Like/Unlike Sex
of Main Character (N=24)

Condition		Sex	Recall Interval			Age			Total
			2D	2W	2M	6	7	8	
Immediate Retell	Story B	L	11.5	13.6	12.0	10.1	11.2	15.8	12.4
		U	11.5	12.6	13.7	10.5	11.8	15.6	12.6
	Story S	L	14.2	13.9	14.1	11.2	15.4	15.7	14.1
		U	15.7	13.3	13.1	12.0	12.8	17.2	14.0
Post-Interval (with IR)	Story B	L	12.3	11.5	9.0	8.5	10.9	13.5	10.9
		U	12.0	10.5	10.0	8.9	11.5	12.0	10.8
	Story S	L	13.8	12.4	11.6	9.9	13.0	14.9	12.6
		U	15.3	13.8	9.0	11.2	12.2	14.8	12.7
Post-Interval (w/out IR)	Story B	L	10.4	8.6	7.2	7.7	8.7	9.7	8.7
		U	10.2	9.6	6.5	7.2	8.9	10.3	8.8
	Story S	L	12.3	10.4	9.4	8.7	11.7	11.8	10.7
		U	12.9	12.2	8.3	8.7	11.9	12.7	11.1

this study do not fit this latter category.

5. Responses to Post-Recall Questions

A breakdown of the responses to those questions which were consistently asked at the conclusion of the child's post-interval retell, and which were amenable to objective scoring, is given in Tables 6 and 7 for both stories. The three questions asked following the retell of Story B dealt with very specific material and were seldom answered correctly. The effect of opportunity for immediate recall is shown to be substantial, especially in remembering the name of one of the characters in the story. The effect of IR is greatest on relevant content, on material likely to be included in immediate retell.

The bulk of all correct replies was given following the two-day interval. In all, there were only four instances in which a child without IR answered a question correctly following an interval greater than two days, i.e., two weeks. While older children answered more questions correctly, the relation between age and tendency to answer questions correctly is not substantial. It is of interest that two questions which varied markedly in the information they sought were answered correctly equally infrequently. One dealt with a completely irrelevant matter, i.e., the color of B's shirt, while the other called for the name of an important character. Both questions evoked similar patterns of response. The age distribution of correct responders to the relevant and irrelevant questions are essentially the same.

Many of the questions asked following the post-interval retell of Story S were more substantive and evoked a great many correct replies. In every case children with IR more often answered the question correctly but the difference between number of correct responses with and without IR was small. Two questions, the first and last, were answered correctly by virtually all the children. They both show slight age and interval gradients of response of equal magnitude.

Table 6

Frequency of Correct Responses to Post-Recall Questions (Story 3) by Age and Recall Interval

Question		Recall Interval			Age			Total (N=144)
		2D	2W	2M	8	7	6	
1. What was B's mother carrying when she came into the kitchen?	with IR	7	2	0	4	1	4	9
	w/out IR	3	1	0	1	3	0	4
2. What color was B's shirt?	with IR	8	5	1	6	3	5	14
	w/out IR	7	3	0	5	3	2	10
3. What was the name of the woman who found Brownie?	with IR	9	8	2	8	6	5	19
	w/out IR	6	0	0	2	3	1	6

Table 7

Frequency of Correct Responses to Post-Recall Questions (Story S) by Age and Recall Interval

Question		Recall Interval			Age			Total (N=144)
		2D	2W	2M	8	7	6	
1. What kind of building did S live in?	with IR	44	45	41	46	43	41	130
	w/out IR	46	39	40	45	44	36	125
2. What color was S's sweater?	with IR	7	2	5	5	6	3	14
	w/out IR	5	2	3	4	2	4	10
3. What did S eat before rushing off to school by him/herself?	with IR	28	18	8	19	20	15	54
	w/out IR	20	16	7	17	14	12	43
4. How much did it cost to ride the city bus?	with IR	38	28	18	32	32	20	84
	w/out IR	33	22	12	29	20	18	67
5. How much money did S have when s/he got on the bus?	with IR	40	28	9	31	24	22	77
	w/out IR	39	18	6	18	26	19	63
6. Why did S go to the Post Office?	with IR	38	32	14	32	28	24	84
	w/out IR	31	26	22	29	31	19	79
7. Why wasn't there anyone at S's school?	with IR	46	45	41	47	44	41	132
	w/out IR	43	45	40	44	46	38	128

The rest of the questions, which dealt with non-trivial aspects of the story, were much more often answered correctly following the shorter intervals. Many fewer children answered the questions correctly following the two-month interval. Correct answers were most often given by children interrogated after the two-day interval. While older children more often answered questions correctly than younger children, the age of the correct respondent was much less influential a determinant of recall than interval length.

It is a curious coincidence that in the case of both stories, when children were asked the color of a garment worn by the main character--shirt in Story B and sweater in Story S--exactly 24 of the 288 participating children in each study remembered this irrelevant piece of information. In both groups, older children remembered this fact slightly more often than younger children. Unlike Story B, where this fact was almost never remembered after two months, in Story S it was remembered just as often after two months as it was after shorter intervals.

B. A Molecular Analysis of the Recall of Major Elements

1. Age Differences

a. Immediate Recall

Because the immediate recall data are based on a larger number of cases, they are treated separately here as well as included in the combined post-interval results presented in the succeeding section.

Story B: The data presented in Table 8 give the number of children in each age group who included particular (major) elements in their immediate retell of the story. They indicate that some elements were included in the immediate retell of almost all children and others were much less frequently mentioned. Perhaps the most striking finding is that the age gradient for each item is either level or has negative slope; the slope is never reversed. There are no

Table 8

Number of Children Who Recalled Major Elements in Immediate Retell (Story B) by Age

Major Elements	No. of Children (N=48)		
	8 years	7 years	6 years
1. Child (Betsy/Billy - girl/boy)	48	45	43
2. Atmosphere (storm)	29	24	17
3. Loss (dog hasn't come home)	45	37	35
4. Worry	28	12	9
5. Comfort (Mother reassures B - dog will come back)	11	1	8
6. Concern (sleep/waking in night/concern about dog)	35	19	23
7. Plan (B decides to look for dog)	17	7	3
8. Preparation (pack supplies/knapsack)	17	17	20
9. Preparation (note)	23	16	20
0. Search (goes outdoors/into woods)	42	42	38
1. Striving (walks, calls, tries to whistle, mud, leaves)	25	15	12
2. Lost (strange part of forest)	12	10	3
3. Accident (falls down bank into water/pulls self out)	31	20	25
4. Danger (something seen/heard)	38	28	25
5. Fear (fear of dangerous animal)	26	18	11
6. Mastery (climbs tree)	28	24	13
7. Partial Success (cow/moo)	48	42	37
8. Mastery (leads cow with leash)	24	16	13
9. Partial Success (finds road/hears sound of cars)	36	17	21
0. Mastery (stops car/whistles)	38	25	16
1. Success (finds dog)	44	35	36
2. Resolution (Mrs. M explains, Brownie helped, storm)	27	19	15
3. Resolution (returns cow)	31	24	16
4. Atmosphere (early morning, storm over)	15	13	12
5. Conclusion (Mrs. M takes B and Brownie home)	37	26	25

items which younger children tended to include more often in their retell than older children. There is no suggestion that younger children single out different items to encode from those chosen by older children.

Of greatest interest are those elements which are present in the retell of some six-year-olds, but tend to appear more frequently among sevens, and still more frequently among eight-year-olds. They identify ways in which memory of narrative material is changing during the developmental span of the study. A great many differences among age groups occurred between the eights and sevens. Some large differences were found across all three groups and others between sevens and sixes. In the following listing of those major elements whose frequency of recall varied with age we have categorized the patterns of variation as: across all three age groups; differences mainly between eights and sevens; differences mainly between sevens and sixes.

(a) differences across all three age groups:

2. Atmosphere (storm)
15. Fear (fear of dangerous animal)
20. Mastery (stops car/whistles)
23. Resolution (returns cow)

(b) differences mainly between eights and sevens:

4. Worry
6. Concern (sleep/waking in night/concern about dog)
7. Plan (B decides to look for dog)
11. Striving (walks, calls, tries to whistle, mud, leaves)
14. Danger (something seen/heard)
18. Mastery (leads cow with leash)
19. Partial Success (finds road/hears sound of cars)
22. Resolution (Mrs. M explains, Brownie helped, storm)
25. Conclusion (Mrs. M takes B and Brownie home)

(c) differences mainly between sevens and sixes:

12. Lost (strange part of forest)
16. Mastery (climbs tree)

The immediate retells of the three age groups for Story B are not dramatically different. It is not as though six-year-olds use one set of elements in

retelling the story and eight-year-olds use many others. The few most salient elements are usually recalled by all the children. Older children add elements to the retell; it becomes more elaborated. They include more material on the antecedent conditions, the state of mind of the hero--in this case, worry and fear--and deal with the final resolution more fully.

Story S: The data presented in Table 9 also indicate that there were no decisive reversals of the age gradient. A categorization of the largest age differences in recall follows.

(a) differences across all three age groups:

5. Provocation (S is slow, thinking, daydreaming)
6. Warning (mother scolds, father warns will go without S)
7. Resolve (S resolves will be fast as lightning)
16. Search (looks for school, walks on, follows bus)
18. Partial Success (memory of kindergarten trip)
21. Frustration (yard empty, school closed)

(b) differences mainly between eights and sevens:

8. Alone (S wakes, no one calls, no one around)
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)
13. Difficulty (no money, driver says can owe it, bus crowded)
22. Despair (cries, disappointed and can't find way home)

(c) differences mainly between sevens and sixes:

4. Parents (mother and father call, urge S to hurry)
9. Concern (thinks parents have gone without her/him)
12. Departure (takes bus)
14. Mistake (gets off at wrong stop - Adams Park)
17. Disappointment (sees flagpole, finds post office, no school)
19. Partial Success (memory of kindergarten trip)
24. Resolution (explain no school on Saturday)
25. Conclusion (all laugh, go home)

The immediate recall of the older children deals more fully with the circumstances that set the story into play and the problems encountered in the course of the search. The youngest group includes fewer details regarding the search and deals with the ending of the story less completely.

b. Post-Interval Recall

Story B: The data describing recall after the experimental intervals are

Table 9

Number of Children Who Recalled Major Elements in Immediate Retell (Story S) by Age

Major Elements	No. of Children (=48)		
	8 years	7 years	6 years
1. Child (Stephie/Stevie - girl/boy)	45	41	43
2. Setting (city, apartment building; morning)	6	1	2
3. Waking (likes to stay in bed, has to get ready for school)	13	14	11
4. Parents (mother and father call, urge S to hurry)	39	37	30
5. Provocation (S slow, thinking, daydreaming)	41	37	31
6. Warning (mother scolds, father warns will go w/out S)	18	12	6
7. Resolve (S resolves will be fast as lightning)	31	24	19
8. Alone (S wakes, no one calls, no one around)	34	23	24
9. Concern (thinks parents have gone without her/him)	16	15	9
10. Plan (decides to go to school alone)	12	8	6
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)	35	24	22
12. Departure (takes bus)	47	47	39
13. Difficulty (no money - driver says can owe it, bus crowded)	43	32	32
14. Mistake (gets off at wrong stop - Adams Park)	44	40	28
15. Lost (doesn't know where s/he is)	9	10	11
16. Search (looks for school - walks on, follows bus)	31	19	13
17. Disappointment (sees [first] flagpole - finds PO, no school)	45	40	28
18. Partial Success (memory of kindergarten trip)	31	19	12
19. Partial Success (sees second flagpole)	32	30	19
20. Success (finds school)	47	46	41
21. Frustration (yard empty, school closed)	41	34	28
22. Despair (cries - disappointed and can't find way home)	26	14	14
23. Protection (parents arrive)	47	43	42
24. Resolution (explain no school on Saturday	39	37	29
25. Conclusion (all laugh, go home)	32	34	22

less clearcut. From Tables 10, 11, and 12, it may be observed that post-interval differences in recall among age groups tend to be somewhat smaller than differences among age groups upon immediate retell. For the most part, the pattern of responding tends to be quite similar for the three age groups. Nevertheless, age gradients, while not as sharp as those found in immediate recall, are apparent. Since the groups comprising each interval condition are made up of different subjects, they are free to function independently. The major elements vary in the degree to which they evoke age gradients of response. The following two items produced sizable age differences in recall following all four intervals:

2. Atmosphere (storm)
14. Danger (something seen/heard)

Age differences in response under three of four group conditions were evoked by the following items:

6. Concern (sleep/waking in night/concern about dog)
17. Partial Success (cow/moo)
20. Mastery (stops car/whistles)
23. Resolution (returns cow)
25. Conclusion (Mrs. M takes B and Brownie home)

Many of these items deal with events or emotional states which amplify but do not themselves constitute the essence of the plot--with the surrounding conditions, the feelings of the hero and the details of his search. Content concerned with resolution and conclusion of the story, with describing in detail how the story ended and how each of the component elements of the plot were resolved was systematically evoked in greater amount from older children.

One age pattern reversal occurred more than once in the same element--the leaving of the note (9. Preparation). Younger children tended to remember this item more often than older children.

Story S: Tables 13, 14, and 15 summarize age gradient patterns for all four interval conditions with Story S. It may be observed that more reversals

Table 10

Number of Children Who Recalled Major Elements in Retell After Two-Day Interval (Story B) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child (Betsy/Billy - girl/boy)	16	14	15
2. Atmosphere (storm)	8	5	6
3. Loss (dog hasn't come home)	12	14	13
4. Worry	5	4	2
5. Comfort (mother reassures B - dog will come back)	3	2	1
6. Concern (sleep/waking in night/concern about dog)	6	5	8
7. Plan (B decides to look for dog)	0	1	1
8. Preparation (pack supplies/knapsack)	1	6	2
9. Preparation (note)	3	3	7
10. Search (goes outdoors/into woods)	14	14	14
11. Striving (walks, calls, tries to whistle, mud, leaves)	7	7	6
12. Lost (strange part of forest)	2	3	0
13. Accident (falls down bank into water/pulls self out)	8	7	4
14. Danger (something seen/heard)	11	6	6
15. Fear (fear of dangerous animal)	6	3	1
16. Mastery (climbs tree)	7	3	5
17. Partial Success (cow/moo)	15	15	11
18. Mastery (leads cow with leash)	2	4	1
19. Partial Success (finds road/hears sound of cars)	4	6	4
20. Mastery (stops car/whistles)	10	2	5
21. Success (finds dog)	14	14	9
22. Resolution (Mrs. M explains, Brownie helped, storm)	7	6	4
23. Resolution (returns cow)	10	11	7
24. Atmosphere (early morning, storm over)	2	3	1
25. Conclusion (Mrs. M takes B and Brownie home)	13	8	11

Table 11

Number of Children Who Recalled Major Elements in Retell After Two-Week Interval (Story B) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child (Betsy/Billy - girl/boy)	15	16	14
2. Atmosphere (storm)	9	5	6
3. Loss (dog hasn't come home)	16	15	13
4. Worry	4	4	2
5. Comfort (Mother reassures B - dog will come back)	2	0	1
6. Concern (sleep/waking in night/concern about dog)	6	6	3
7. Plan (B decides to look for dog)	2	2	1
8. Preparation (pack supplies/knapsack)	4	2	2
9. Preparation (note)	3	3	6
0. Search (goes outdoors/into woods)	13	16	9
1. Striving (walks, calls, tries to whistle, mud, leaves)	8	3	2
2. Lost (strange part of forest)	3	0	0
3. Accident (falls down bank into water/pulls self out)	8	6	3
4. Danger (something seen/heard)	7	10	5
5. Fear (fear of dangerous animal)	3	3	4
6. Mastery (climbs tree)	2	2	4
7. Partial Success (cow/moo)	16	14	10
8. Mastery (leads cow with leash)	1	1	1
9. Partial Success (finds road/hears sound of cars)	3	1	2
0. Mastery (stops car/whistles)	4	4	1
1. Success (finds dog)	12	16	11
2. Resolution (Mrs. M explains, Brownie helped, storm)	5	0	0
3. Resolution (returns cow)	13	11	7
4. Atmosphere (early morning, storm over)	1	1	1
5. Conclusion (Mrs. M takes B and Brownie home)	10	11	5

Table 12

Number of Children Who Recalled Major Elements in Retell After Two-Month Interval (Story B) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child (Betsy/Billy - girl/boy	15	14	15
2. Atmosphere (storm)	7	3	3
3. Loss (dog hasn't come home)	13	14	9
4. Worry	2	1	2
5. Comfort (mother reassures B - dog will come back)	0	1	0
6. Concern (sleep/waking in night/concern about dog)	5	2	4
7. Plan (B decides to look for dog)	0	2	1
8. Preparation (pack supplies/knapsack)	0	1	2
9. Preparation (note)	2	4	1
10. Search (goes outdoors/into woods)	13	13	15
11. Striving (walks, calls, tries to whistle, mud, leaves)	3	2	4
12. Lost (strange part of forest)	2	1	2
13. Accident (falls down bank into water/pulls self out)	2	2	0
14. Danger (something seen/heard)	6	3	1
15. Fear (fear of dangerous animal)	2	2	5
16. Mastery (climbs tree)	1	2	0
17. Partial Success (cow/moo)	13	9	9
18. Mastery (leads cow with leash)	1	0	0
19. Partial Success (finds road/hears sound of cars)	2	3	2
20. Mastery (stops car/whistles)	1	0	0
21. Success (finds dog)	10	12	10
22. Resolution (Mrs. M explains, Brownie helped, storm)	3	2	1
23. Resolution (returns cow)	11	8	5
24. Atmosphere (early morning, storm over)	1	0	0
25. Conclusion (Mrs. M takes B and Brownie home)	9	5	6

Table 13

Number of Children Who Recalled Major Elements in Retell After Two-Day Interval (Story S) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child (Stephie/Stevie - girl/boy)	16	16	11
2. Setting (city, apartment building; morning)	0	0	0
3. Waking (likes to stay in bed, has to get ready for school)	3	1	1
4. Parents (mother and father call, urge S to hurry)	8	11	6
5. Provocation (S slow, thinking, daydreaming)	12	12	7
6. Warning (mother scolds, father warns will go w/out S)	2	4	1
7. Resolve (S resolves will be fast as lightning)	6	6	4
8. Alone (S wakes, no one calls, no one around)	10	9	13
9. Concern (thinks parents have gone without her/him)	10	7	4
10. Plan (decides to go to school alone)	5	5	5
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)	4	7	8
12. Departure (takes bus)	16	16	14
13. Difficulty (no money - driver says can owe it, bus crowded)	11	11	11
14. Mistake (gets off at wrong stop - Adams Park)	14	12	9
15. Lost (doesn't know where s/he is)	2	0	2
16. Search (looks for school - walks on, follows bus)	6	5	1
17. Disappointment (sees [first] flagpole - finds PO, no school)	12	11	11
18. Partial Success (memory of kindergarten trip)	7	3	4
19. Partial Success (sees second flagpole)	8	9	8
20. Success (finds school)	16	12	13
21. Frustration (yard empty, school closed)	14	11	8
22. Despair (cries - disappointed and can't find way home)	7	2	2
23. Protection (parents arrive)	15	15	15
24. Resolution (explain no school on Saturday)	15	9	9
25. Conclusion (all laugh, go home)	10	8	7

Table 14

Number of Children Who Recalled Major Elements in Retell After Two-Week Interval (Story S) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child (Stephie/Stevie - girl/boy)	15	16	14
2. Setting (city, apartment building; morning)	0	0	0
3. Waking (likes to stay in bed, has to get ready for school)	1	1	0
4. Parents (mother and father call, urge S to hurry)	8	5	4
5. Provocation (S slow, thinking, daydreaming)	12	9	5
6. Warning (mother scolds, father warns will go w/out S)	4	5	3
7. Resolve (S resolves will be fast as lightning)	3	2	3
8. Alone (S wakes, no one calls, no one around)	7	7	3
9. Concern (thinks parents have gone without her/him)	8	6	5
10. Plan (decides to go to school alone)	12	3	2
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)	2	7	2
12. Departure (takes bus)	14	14	8
13. Difficulty (no money - driver says can owe it, bus crowded)	12	7	3
14. Mistake (gets off at wrong stop - Adams Park)	11	14	5
15. Lost (doesn't know where s/he is)	4	4	4
16. Search (looks for school - walks on, follows bus)	7	9	1
17. Disappointment (sees [first] flagpole - finds PO, no school)	14	9	5
18. Partial Success (memory of kindergarten trip)	4	5	2
19. Partial Success (sees second flagpole)	8	6	4
20. Success (finds school)	14	15	14
21. Frustration (yard empty, school closed)	15	13	8
22. Despair (cries - disappointed and can't find way home)	5	4	2
23. Protection (parents arrive)	15	16	14
24. Resolution (explain no school on Saturday)	16	15	9
25. Conclusion (all laugh, go home)	7	7	6

Table 15

Number of Children Who Recalled Major Elements in Retell After Two-Month Interval (Story S) by Age

Major Elements	No. of Children (N=16)		
	8 years	7 years	6 years
1. Child ((Stephie/Stevie - girl/boy)	15	15	11
2. Setting (city, apartment building; morning)	0	1	0
3. Waking (likes to stay in bed, has to get ready for school)	0	1	1
4. Parents (mother and father call, urge S to hurry)	0	5	2
5. Provocation (S slow, thinking, daydreaming)	9	7	3
6. Warning (mother scolds, father warns will go w/out S)	1	4	2
7. Resolve (S resolves will be fast as lightning)	0	1	0
8. Alone (S wakes, no one calls, no one around)	3	6	6
9. Concern (thinks parents have gone without her/him)	4	5	3
10. Plan (decides to go to school alone)	4	1	4
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)	1	1	4
12. Departure (takes bus)	12	14	12
13. Difficulty (no money - driver says can owe it, bus crowded)	6	6	3
14. Mistake (gets off at wrong stop - Adams Park)	6	8	3
15. Lost (doesn't know where s/he is)	11	7	4
16. Search (looks for school - walks on, follows bus)	7	7	7
17. Disappointment (sees [first] flagpole - finds PO, no school)	7	9	6
18. Partial Success (memory of kindergarten trip)	1	2	0
19. Partial Success (sees second flagpole)	2	6	2
20. Success (finds school)	13	14	9
21 Frustration (yard empty, school closed)	10	10	10
22. Despair (cries - disappointed and can't find way home)	3	5	0
23. Protection (parents arrive)	15	13	11
24. Resolution (explain no school on Saturday)	9	10	8
25. Conclusion (all laugh, go home)	3	7	7

of the age gradient occurred after the longest interval (two months) than with Story B. In both stories, the number of elements which show a gradient diminishes substantially after the longest interval--two months. Only one major element--5. Provocation (S slow, thinking, daydreaming)--showed an age gradient of recall after all four intervals. An age gradient of recall in three conditions was found with the following elements:

13. Difficulty (no money - driver says can owe it, bus crowded)
16. Search (looks for school - walks on, follows bus)
21. Frustration (yard empty, school closed)
22. Despair (cries - disappointed and can't find way home)
24. Resolution (explain no school on Saturday)

The elements which evoked the most consistent pattern of age variation in recall were items which gave the motivation for the plot, described the hero's feeling states in the course of his search, detail events tangential to the main plot and explain at the conclusion why the story took the turn that it did.

2. The Effect of Interval Length

Story B

a. Eight-year-olds. In this section we examine the way in which the recall of each of the major elements in the story changes with the passage of time (see Table 16). Some elements show no appreciable change in their retention following even the longest interval. In other cases there is a substantial decline in retention (i.e., at least four fewer children recalled the element after two months than recalled it immediately). Where there has been a decline over time, in some cases the change has occurred progressively, while in others it has occurred abruptly after a particular interval. The recall of each major element has been studied to determine whether it has remained steady or declined with the passage of time. Where there has been a change with time, the quality of the change has been categorized as follows:

Table 16

Recall of Major Elements by Eight-Year-Olds (Story B); by Interval, With and Without Immediate Retell

Major Elements	Number of Children							
	Without IR				With IR			
	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	16	16	15	15	16	16	16	15
2. Atmosphere	10	8	9	7	10	10	7	10
3. Loss	15	12	16	13	15	15	14	14
4. Worry	9	5	4	2	9	7	6	5
5. Comfort	4	3	2	0	4	3	3	3
6. Concern	12	6	6	5	12	11	9	7
7. Plan	6	0	2	0	6	4	3	1
8. Preparation	6	1	4	0	6	7	5	4
9. Preparation	8	3	3	2	8	11	3	2
10. Search	14	14	13	13	14	15	16	13
11. Striving	8	7	8	3	8	7	9	5
12. Lost	4	2	3	2	4	5	3	1
13. Accident	10	8	8	2	10	9	8	3
14. Danger	13	11	7	6	13	15	10	10
15. Fear	9	6	3	2	9	11	7	6
16. Mastery	9	7	2	1	9	11	6	3
17. Partial Success	16	15	16	13	16	16	15	13
18. Mastery	8	2	1	1	8	6	7	2
19. Partial Success	12	4	3	2	12	11	10	4
20. Mastery	13	10	4	1	13	13	6	3
21. Success	15	14	12	10	15	13	13	14
22. Resolution	9	7	5	3	9	11	4	5
23. Resolution	10	10	13	11	10	12	6	8
24. Atmosphere	5	2	1	1	5	1	4	1
25. Conclusion	12	13	10	9	12	12	9	12

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

No appreciable decline[1]

1. Child (B - girl/boy)
2. Atmosphere (storm)
3. Loss (dog hasn't come home)
10. Search (goes outdoors/into woods)
17. Partial Success (finds road/hears sound of cars)
21. Success (finds dog)
23. Resolution (returns cow)
25. Conclusion (Mrs. M takes B and Brownie home)

Continuous declines

4. Worry
5. Comfort (mother reassures B - dog will come back)
14. Danger (something seen/heard)
15. Fear (fear of dangerous animal)
16. Mastery (climbs tree)
20. Mastery (stops car/whistles)
22. Resolution (Mrs. M explains, Brownie helped, storm)

Declines following two-day interval

6. Concern (sleep/waking in night/concern about dog)
7. Plan (B decides to look for dog)
8. Preparation (pack supplies/knapsack)
9. Preparation (note)
18. Mastery (leads cow with leash)
19. Partial Success (finds road/hears sound of cars)
24. Atmosphere (early morning, storm over)

Declines following two-month interval

11. Striving (walks, calls, tries to whistle, mud, leaves)
13. Accident (falls down bank into water/pulls self out)

In examining these rosters of items, it may be observed that the elements which showed essentially no decline with the passage of time by themselves constitute a skeletal plot of the story. They appear to be the essential elements. Among those elements whose frequency of recall declines with time, those which deal with very specific, non-essential details decline more rapidly while those

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[1]This analysis was limited to those elements which were included in the immediate recall of at least half the subjects in a group (i.e., eight or more). Only these cases provided a starting point high enough in frequency to make possible the judgment of no appreciable decline.

which depict more dramatic events or more thematic characterizations fade from the retells after a longer interval.

The effect of IR on the pattern of retention of major elements is to retard the decline of memory for those elements which have been shown to undergo a change of recall with the passage of time. Among those eight-year-olds with IR, fewer major elements show a pattern of decline. Those elements which do show a decline are among those which showed a decline in children without IR. The effect of IR is to arrest the process of forgetting. Some items which had shown signs of fading among children without IR do not do so among children with IR. Others fade more slowly; the sharp declines observed in some elements after two days among children without IR occur more gradually or after a longer interval among children with IR.

b. Seven-year-olds. The data for seven-year-olds show a somewhat different pattern for several reasons (Table 17). There are many fewer major elements which were recalled with high frequency during the immediate retells. Those which fall into that category show little if any decline with the passage of time. Unlike eight-year-olds, the only major elements which are almost universally included in their immediate retells are the salient components of the story and they are not later forgotten. Many elements were recalled so infrequently during the immediate retell that they could not serve as standards from which to record a decline.

No appreciable decline

1. Child (B - girl/boy)
3. Loss (dog hasn't come home)
10. Search (goes outdoors/into woods)
21. Success (finds dog)
23. Resolution (returns cow)

Continuous declines

2. Atmosphere (storm)
18. Mastery (leads cow with leash)

Table 17

Recall of Major Elements by Seven-Year-Olds (Story B); by Interval, With and Without Immediate Retell

	Number of Children							
	Without IR				With IR			
Major Elements	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	15	14	16	14	15	16	16	16
2. Atmosphere	8	5	5	3	8	8	7	6
3. Loss	12	14	15	14	12	13	14	13
4. Worry	4	4	4	1	4	5	1	7
5. Comfort	1	2	0	1	1	1	0	0
6. Concern	6	5	6	2	6	9	6	9
7. Plan	2	1	2	2	2	2	1	2
8. Preparation	6	6	2	1	6	6	4	2
9. Preparation	5	3	3	4	5	9	7	5
10. Search	14	14	16	13	14	14	15	14
11. Striving	5	7	3	2	5	6	4	5
12. Lost	3	3	0	1	3	4	1	2
13. Accident	7	7	6	2	7	8	5	6
14. Danger	9	6	10	3	9	11	10	11
15. Fear	6	3	3	2	6	7	4	5
16. Mastery	8	3	2	2	8	6	5	7
17. Partial Success	14	15	14	9	14	15	15	15
18. Mastery	5	4	1	0	5	5	6	2
19. Partial Success	6	6	1	3	6	8	4	4
20. Mastery	8	2	4	0	8	5	4	3
21. Success	12	14	16	12	12	15	13	10
22. Resolution	6	6	0	2	6	8	5	5
23. Resolution	8	11	11	8	8	10	9	8
24. Atmosphere	4	3	1	0	4	5	1	0
25. Conclusion	9	8	11	5	9	11	12	5

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

20. Mastery (stops car/whistles)
24. Atmosphere (early morning, storm over)

Declines following two-day interval

16. Mastery (climbs tree)

Declines following two-week interval

8. Preparation (pack supplies/knapsack)
19. Partial Success (finds road/hears sound of cars)
22. Resolution (Mrs. M explains, Brownie helped, storm)

Declines following two-month interval

6. Concern (sleep/waking in night/concern about dog)
13. Accident (falls down bank into water/pulls self out)
14. Danger (something seen/heard)
15. Fear (fear of dangerous animal)
17. Partial Success (cow/moo)
25. Conclusion (Mrs. M takes B and Brownie home)

The above rosters show a considerable resemblance to the results obtained from eight-year-olds. The major elements recalled by a sizable number of seven-year-olds which showed no decline in retention with the passage of time overlap completely with an equivalent list for eight-year-olds. Only the list is larger with eight-year-olds. In each case, however, the list is made up of elements which provide a skeleton of the story. Among the seven-year-olds, the decline in recall of major elements appears to occur sooner than it does in eight-year-olds. Also, some elements, which show no decline among eight-year-olds, e.g., #s 17 and 25, show a substantial decline after two months in seven-year-olds.

The effect of immediately retelling the story on subsequent retention is essentially the same for seven-year-olds as for eight-year-olds. Some of the elements which had shown a decline in recall with seven-year-olds without IR showed no decline among Ss who had IR. In the case of other major elements, the decline proceeds more slowly for those with IR.

c. Six-year-olds. The pattern of retention of major elements (Table 18) is strikingly similar for sixes to that obtained with sevens, except that all

Table 18

Recall of Major Elements by Six-Year-Olds (Story B); by Interval, With and Without Immediate Retell

	Number of Children							
	Without IR				With IR			
Major Elements	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	14	15	14	15	14	15	14	15
2. Atmosphere	6	6	6	3	6	5	5	7
3. Loss	12	13	13	9	12	12	14	11
4. Worry	3	2	2	2	3	1	4	4
5. Comfort	3	1	1	0	3	0	1	0
6. Concern	8	8	3	4	8	5	10	3
7. Plan	1	1	1	1	1	1	1	0
8. Preparation	7	2	2	2	7	5	1	4
9. Preparation	7	7	6	1	7	1	3	2
10. Search	13	14	9	15	13	14	11	14
11. Striving	4	6	2	4	4	3	4	5
12. Lost	1	0	0	2	1	1	2	0
13. Accident	8	4	3	0	8	4	8	6
14. Danger	8	6	5	1	8	5	12	8
15. Fear	4	1	4	1	4	3	5	2
16. Mastery	4	5	4	0	4	5	7	3
17. Partial Success	12	11	10	9	12	10	14	13
18. Mastery	4	1	1	0	4	4	3	1
19. Partial Success	7	4	2	2	7	3	4	3
20. Mastery	5	5	1	0	5	2	2	1
21. Success	12	9	11	10	12	11	12	12
22. Resolution	5	4	0	1	5	3	4	1
23. Resolution	5	7	7	5	5	5	8	7
24. Atmosphere	4	1	1	0	4	1	1	2
25. Conclusion	8	11	5	6	8	5	12	8

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

elements show at least some decline with the passage of time.

No appreciable decline

1. Child (B - girl/boy)
3. Loss (dog hasn't come home)
10. Search (goes outdoors/into woods)
17. Partial Success (cow/moo)
21. Success (finds dog)
25. Conclusion (Mrs. M takes B and Brownie home)

Continuous declines

13. Accident (falls down bank into water/pulls self out)
14. Danger (something seen/heard)
19. Partial Success (finds road/hears sound of cars)
22. Resolution (Mrs. M explains, Brownie helped, storm)

Declines following two-day interval

8. Preparation (pack supplies/knapsack)
18. Mastery (leads cow with leash)

Declines following two-week interval

6. Concern (sleep/waking in night/concern about dog)
20. Mastery (stops car/whistles)

Declines following two-month interval

9. Preparation (note)
16. Mastery (climbs tree)

It may be observed that the list of elements showing no appreciable decline among six-year-olds is virtually identical to that obtained with seven-year-olds and is entirely subsumed by the roster obtained for eight-year-olds. In the case of six-year-olds, there is somewhat more slippage in the retention of all elements. The items showing a decline are similar to those found among seven-year-olds, but the decline tends to occur earlier among six-year-olds. Again, the effect of retelling the story immediately upon hearing it is to arrest, and in some instances, to eliminate the decline in retention of certain elements.

Story S

a. Eight-year-olds (Table 19)

No appreciable decline

1. Child (S - girl/boy)
12. Departure (takes bus)
20. Success (finds school)
21. Frustration (yard empty, school closed)
23. Protection (parents arrive)

Continuous declines

3. Waking (likes to stay in bed, has to get ready for school)
4. Parents (mother and father call, urge S to hurry)
5. Provocation (S slow, thinking, daydreaming)
7. Resolve (S resolves will be fast as lightning)
8. Alone (S wakes, no one calls, no one around)
13. Difficulty (no money - driver says can owe it, bus crowded)
14. Mistake (gets off at wrong stop - Adams Park)
18. Partial Success (memory of kindergarten trip)
19. Partial Success (sees second flagpole)
22. Despair (cries - disappointed and can't find way home)
25. Conclusion (all laugh, go home)

Declines following two-day interval

6. Warning (mother scolds, father warns will go w/out S)
11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)
16. Search (looks for school - walks on, follows bus)

Declines following two-month interval

17. Disappointment (sees first flagpole - finds PO, no school)
24. Resolution (explains no school on Saturday)

The above listing indicates that only a relatively small number of elements in Story S are resistive to forgetting with the passage of time. Not surprisingly, an examination of these elements indicates that they constitute the basic elements of the story.

The effect of immediate recall on subsequent retention of the elements of Story S is quite dramatic. Whereas most of the major elements show a steady decline with time among Ss without IR, in most cases no decline is manifest in the IR group until after the two-month interval. It is as though the effect

Table 19

Recall of Major Elements by Eight-Year-Olds (Story S); by Interval, With and Without Immediate Retell

Major Elements	Number of Children							
	Without IR				With IR			
	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	15	16	15	15	15	16	15	14
2. Setting	2	0	0	0	2	2	2	0
3. Waking	4	3	1	0	4	7	1	2
4. Parents	13	8	8	0	13	14	14	5
5. Provocation	14	12	12	9	14	16	13	7
6. Warning	6	2	4	1	6	9	4	3
7. Resolve	10	6	3	0	10	8	9	3
8. Alone	11	10	7	3	11	13	8	6
9. Concern	5	10	8	4	5	6	5	3
10. Plan	4	5	12	4	4	3	5	4
11. Preparation	12	4	2	1	12	11	12	5
12. Departure	16	16	14	12	16	16	15	15
13. Difficulty	14	11	12	6	14	15	12	9
14. Mistake	15	14	11	6	15	16	14	12
15. Lost	3	2	4	11	3	3	2	1
16. Search	10	6	7	7	10	12	5	8
17. Disappointment	15	12	14	7	15	16	16	10
18. Partial Success	10	7	4	1	10	12	7	6
19. Partial Success	11	8	8	2	11	13	15	6
20. Success	16	16	14	13	16	16	15	15
21. Frustration	14	14	15	10	14	15	13	12
22. Despair	9	7	5	3	9	10	7	1
23. Protection	16	15	15	15	16	16	16	15
24. Resolution	13	15	16	9	13	11	14	12
25. Conclusion	11	10	7	3	11	10	9	4

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

of IR on the retention of most elements of Story S is to postpone their forgetting for several weeks or even months.

b. Seven-year-olds (Table 20)

No appreciable decline

1. Child (S - girl/boy)
12. Departure (takes bus)
17. Disappointment (sees first flagpole - finds PO, no school)
20. Success (finds school)
21. Frustration (yard empty, school closed)
23. Protection (parents arrive)
24. Resolution (explain no school on Saturday)
25. Conclusion (all laugh, go home)

Continuous declines

5. Provocation (S slow, thinking, daydreaming)
7. Resolve (S resolves will be fast as lightning)
13. Difficulty (no money - driver says can owe it, bus crowded)
19. Partial Success (sees second flagpole)

Declines following two-day interval

3. Waking (likes to stay in bed, has to get ready for school)

Declines following two-week interval

4. Parents (mother and father call, urge S to hurry)

Declines following two-month interval

11. Preparation (banana, goes downstairs, comes back for schoolbag and supplies)
14. Mistake (gets off at wrong stop - Adams Park)

The seven-year-olds have a somewhat larger aggregate of elements retained across all intervals than do the eights. This aggregate includes all those which fell into this category among the eights. Partly because there are fewer elements of sufficiently high frequency of recall at the time of immediate recall to serve as a baseline for recording declines in retention, many fewer elements show a decline in retention among the sevens. All of the elements found to show declines among sevens were also found to do so among the eights.

The effect of IR on retention of elements follows the established pattern. With the exception of one element which showed a sharp decline after two weeks,

Table 20

Recall of Major Elements by Seven-Year-Olds (Story S); by Interval, With and Without Immediate Retell

Major Elements	Number of Children							
	Without IR				With IR			
	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	14	16	16	15	14	16	15	15
2. Setting	0	0	0	1	0	1	0	3
3. Waking	5	1	1	1	5	2	3	3
4. Parents	12	11	5	5	12	12	11	11
5. Provocation	12	12	9	7	12	11	13	8
6. Warning	4	4	5	4	4	6	4	2
7. Resolve	8	6	2	1	8	8	7	5
8. Alone	8	9	7	6	8	7	10	9
9. Concern	5	7	6	5	5	7	2	5
10. Plan	3	5	3	1	3	7	3	3
11. Preparation	8	7	7	1	8	5	5	6
12. Departure	16	16	14	14	16	14	15	13
13. Difficulty	11	11	7	6	11	11	11	4
14. Mistake	13	12	14	8	13	13	12	9
15. Lost	3	0	4	7	3	1	4	4
16. Search	6	5	9	7	6	3	8	8
17. Disappointment	13	11	9	9	13	13	12	7
18. Partial Success	6	3	5	2	6	8	2	1
19. Partial Success	10	9	6	6	10	9	8	2
20. Success	15	12	15	14	15	12	15	14
21. Frustration	11	11	13	10	11	9	14	9
22. Despair	5	2	4	5	5	4	3	3
23. Protection	14	15	16	13	14	16	15	15
24. Resolution	12	9	15	10	12	11	11	10
25. Conclusion	11	8	7	7	11	7	12	8

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

every element which had shown a pattern of decline among children without IR either showed no decline or had its decline postponed until after the two-month interval. These results provide further evidence of how opportunity for immediate recall extended the retention of elements to a point beyond two weeks.

c. Six-year-olds (Table 21)

No appreciable decline

1. Child (S - girl/boy)
12. Departure (takes bus)
17. Disappointment (sees first flagpole - finds PO, no school)
21. Frustration (yard empty, school closed)
23. Protection (parents arrive)
24. Resolution (explain no school on Saturday)

Continuous declines

3. Waking (likes to stay in bed, has to get ready for school)
4. Parents (mother and father call, urge S to hurry)
5. Provocation (S slow, thinking, daydreaming)
7. Resolve (S resolves will be fast as lightning)
8. Alone (S wakes, no one calls, no one around)
13. Difficulty (no money - driver says can owe it, bus crowded)
14. Mistake (gets off at wrong stop - Adams Park)
18. Partial Success (memory of kindergarten trip)

Declines following two-month interval

20. Success (finds school)

Once more there is a startling uniformity to the data. All six elements whose frequency of recall did not appreciably change with the passage of time were among the eight such elements in this category for seven-year-olds. The elements found to decline in retention following progressively longer intervals are for the most part the same ones found to perform in this fashion with sevens and eights.

The effect of IR is also similar to that found with older age groups. Those subjects with IR show only slight declines in retention. Among those elements found to have sharp declines after all intervals among Ss without IR, the declines occurred after two months for Ss with IR.

Table 21

Recall of Major Elements by Six-Year-Olds (Story S); by Interval, With and Without Immediate Retell

	Number of Children							
	Without IR				With IR			
Major Elements	IR*	2D	2W	2M	IR*	2D	2W	2M
1. Child	14	11	14	11	14	12	13	16
2. Setting	1	0	0	0	1	2	0	0
3. Waking	4	1	0	1	4	5	2	1
4. Parents	10	6	4	2	10	10	10	6
5. Provocation	10	7	5	3	10	12	9	5
6. Warning	2	1	3	2	2	2	2	1
7. Resolve	6	4	3	0	6	8	4	2
8. Alone	8	13	3	6	8	9	4	5
9. Concern	3	4	5	3	3	2	4	6
10. Plan	2	5	2	4	2	3	1	2
11. Preparation	7	8	2	4	7	9	5	2
12. Departure	13	14	8	12	13	15	11	12
13. Difficulty	11	11	3	3	11	13	9	3
14. Mistake	9	9	5	3	9	11	7	7
15. Lost	4	2	4	4	4	1	2	3
16. Search	4	1	1	7	4	5	6	7
17. Disappointment	9	11	5	6	9	13	8	6
18. Partial Success	5	4	2	0	5	3	4	1
19. Partial Success	6	8	4	2	6	7	7	2
20. Success	14	13	14	9	14	14	13	13
21. Frustration	9	8	8	10	9	11	12	10
22. Despair	5	2	2	0	5	3	4	1
23. Protection	14	15	14	11	14	15	13	12
24. Resolution	10	9	9	8	10	9	8	10
25. Conclusion	7	7	6	7	7	7	6	5

*In order to facilitate group comparisons, the frequencies obtained from the IR condition (N=48) have been divided by three to make them equivalent in magnitude to post-interval frequencies (N=16).

The uniformity from one age group to the other of items which show no appreciable decline in recall with the passage of time has already been noted. Another way to record this fact is to point out that all items which show no appreciable decline among sixes or sevens in Story B are included among those at the eight-year level whose recall remained stable. Similarly, in Story S, all those items whose recall did not change among sixes or eights are among those which fell into a similar category among sevens. Since there is a commonality among age groups in terms of the major elements whose recall did not decline appreciably with the passage of time, one may ask about the relation of such items to those which were found to consistently show differences in recall (i.e., in at least three of the four intervals, including IR, studied) among the different age groups. Are the items which show differences in recall among different age groups a different set from those which consistently show no decline with the passage of time among all age groups? The answer to this question is no. Four of the seven items whose recall varies consistently with age in Story B (items 2, 17, 23, 25) and two of the six items in Story S which show similar patterns (items 21 and 24) are among those which show no appreciable decline with the passage of time. Thus, we see that as children grow older, not only do they recall a greater number of less salient elements which are forgotten more rapidly, but more of them tend to remember those items which are remembered longest.

C. Qualitative Analysis of Data

In addition to a quantitative tabulation of informational content, the recall data were also subjected to a more qualitative form of assessment. Each response was rated on four scales which described somewhat overlapping but nevertheless distinct qualitative features of performance. The four-point scales were:

1. Organization--A story which is organized is one which has direction and purpose, it does not have to follow the lines of our story, but it must hang together and flow smoothly. It has a beginning, middle, and end of its own--it doesn't have to necessarily follow the same ones that are in the original story. It should give the feeling of being a story, of going somewhere.

   Scale points:

   1) - Fragmentary listing of elements with no hint of organization or continuity.
   2) - Atomistic listing of elements with one or two events recounted in an organized way. (An event is made up of a group of information units which form a logical and unique relationship; an episode.)
   3) - The story has a beginning and some interrelationships, but with weak areas; perhaps a collapsing of the middle or end (or weak beginning with strong middle and end).
   4) - A coherent story with clear beginning, middle, and end, in which parts or elements of story are interrelated. The story has a sense of continuity and direction.

2. Sequence

   Scale points:

   1) - No sense of sequence; elements given in random order.
   2) - Little sense of order, but some sequence evidenced.
   3) - Mixed; in some places no sequence, in others good sequence or sequence only slightly impaired.
   4) - Almost no mistakes in sequence.

3. Plot Strength--Generally implies a logical development and unfolding of the original story. Plot strength is similar to organization in that it seems to have direction. However, this category applies to correct information which comes directly from the story.

   Scale points: Based on number of items included in response characterized by the above definition.

4. Causal Reasoning--Elements of story presented with understanding of causal connections, including explanations which link events of story or provide clarifying information. Development and resolutions of plot. Does one thing lead to the next?

   Scale points: Based on number of response components that fit above definition of causal reasoning.

The results of these rating procedures are summarized in a set of tables which give the mean rating assigned to each age group and each interval group (see Tables 22-25). Since the responses to Story B were scored by one rater,

Table 22

Distribution of Mean Ratings of Organization According to Age and Recall Interval (N=16)

	Story B					Story S				
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	3.5	3.5	3.4	3.5	8	3.4	3.3	3.6	3.4
	7	2.6	2.8	2.4	2.6	7	3.4	3.3	3.3	3.2
	6	1.9	2.6	2.4	2.3	6	3.2	2.4	3.0	2.8
	$\bar{X}$	--	--	--	2.8	$\bar{X}$	--	--	--	3.2
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (with IR)	8	3.6	3.5	2.7	3.3	8	3.6	3.7	3.0	3.4
	7	3.1	3.1	2.6	2.9	7	3.1	3.0	2.8	3.0
	6	2.5	2.6	2.2	2.4	6	3.2	2.6	2.4	2.7
	$\bar{X}$	3.1	3.1	2.5	2.9	$\bar{X}$	3.3	3.1	2.7	3.1
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (w/out IR)	8	2.9	2.7	2.4	2.7	8	3.5	3.3	2.7	3.2
	7	3.0	3.1	2.2	2.7	7	2.8	3.2	2.9	3.0
	6	2.2	1.7	2.1	2.0	6	2.7	2.3	2.6	2.6
	$\bar{X}$	2.7	2.5	2.2	2.5	$\bar{X}$	3.0	2.9	2.7	2.9

Table 23

Distribution of Mean Ratings of Sequence According to Age and Recall Interval (N=16)

	Story B					Story S				
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	3.8	3.7	3.7	3.7	8	3.9	3.8	3.9	3.9
	7	3.6	3.1	3.2	3.3	7	3.7	3.8	3.9	3.8
	6	3.2	3.2	3.2	3.2	6	3.7	3.1	3.6	3.5
	$\bar{X}$	--	--	--	3.4	$\bar{X}$	--	--	--	3.7
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (with IR)	8	3.8	3.7	3.2	3.6	8	3.9	3.9	3.8	3.9
	7	3.5	3.4	3.4	3.4	7	3.7	3.7	3.6	3.7
	6	3.2	3.2	2.8	3.1	6	3.8	3.4	3.4	3.5
	$\bar{X}$	3.5	3.4	3.1	3.4	$\bar{X}$	3.8	3.7	3.6	3.7
	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (w/out IR)	8	3.6	3.7	3.2	3.5	8	3.9	3.9	3.6	3.8
	7	3.4	3.7	3.1	3.4	7	3.8	3.9	3.7	3.8
	6	2.8	2.4	3.4	2.9	6	3.4	3.4	2.9	3.2
	$\bar{X}$	3.2	3.3	3.2	3.2	$\bar{X}$	3.7	3.7	3.4	3.6

Table 24

Distribution of Mean Ratings of Plot Strength According to Age and Recall Interval (N=16)

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	3.4	3.2	3.4	3.4	8	3.5	3.2	3.6	3.4
	7	2.4	2.7	2.6	2.6	7	2.8	3.1	3.2	3.0
	6	1.8	2.6	2.4	2.3	6	3.1	2.2	2.6	2.7
	$\bar{X}$	--	--	--	2.7	$\bar{X}$	--	--	--	3.0

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (with IR)	8	3.4	2.9	2.3	2.9	8	3.7	3.4	2.6	3.2
	7	2.9	2.6	2.3	2.6	7	3.0	2.9	2.4	2.8
	6	2.2	2.2	1.9	2.1	6	3.1	2.1	2.2	2.4
	$\bar{X}$	2.8	2.6	2.2	2.5	$\bar{X}$	3.2	2.8	2.4	2.8

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (w/out IR)	8	2.8	2.6	1.8	2.4	8	3.4	3.2	2.3	3.0
	7	2.4	2.3	1.8	2.2	7	3.1	2.9	2.5	2.8
	6	2.2	1.7	1.8	2.0	6	2.6	2.1	2.0	2.2
	$\bar{X}$	2.5	2.2	1.8	2.2	$\bar{X}$	3.0	2.7	2.3	2.7

Table 25

Distribution of Mean Ratings of Causal Reasoning
According to Age and Recall Interval
(N=16)

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Immediate Retell	8	2.7	2.2	2.4	2.5	8	2.2	2.1	2.4	2.2
	7	1.4	1.6	1.7	1.6	7	1.7	1.7	1.7	1.7
	6	1.2	1.7	1.6	1.5	6	1.7	1.1	1.2	1.4
	$\bar{X}$	--	--	--	1.8	$\bar{X}$	--	--	--	1.8

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (with IR)	8	2.6	1.8	1.2	1.9	8	2.4	2.2	1.1	1.9
	7	1.7	1.4	1.5	1.5	7	1.7	1.6	1.4	1.6
	6	1.2	1.2	1.0	1.1	6	1.7	1.2	1.0	1.3
	$\bar{X}$	1.8	1.4	1.2	1.5	$\bar{X}$	2.0	1.6	1.2	1.6

	Age	2D	2W	2M	$\bar{X}$	Age	2D	2W	2M	$\bar{X}$
Post-Interval (w/out IR)	8	1.7	1.3	1.1	1.4	8	2.2	1.8	1.2	1.8
	7	1.4	1.1	1.1	1.2	7	1.7	1.6	1.3	1.5
	6	1.1	1.1	1.0	1.1	6	1.6	1.1	1.1	1.4
	$\bar{X}$	1.4	1.2	1.0	1.2	$\bar{X}$	1.8	1.5	1.2	1.5

and those to Story S by another rater, differences between the ratings of the two story-groups may simply reflect differences in the raters' interpretation of scale points. While a constant error may be expected, this consideration does not preclude making within story-group comparisons for the two bodies of data. The results obtained from these four scales follow:

1. Organization

In the immediate recall of both stories, the oldest group is rated as having the greatest organization and the youngest as having least (see Table 22) However, in Story B, the sevens are rated as being much closer to the sixes than to the eights whereas in Story S the reverse is true.

In both story-groups the overall totals for the post-interval group with IR are closer to those assigned to the immediately recalled stories than they are to the post-interval group without IR. In fact, the mean rating of the group with IR in Story B actually exceeded that given to the immediately recalled data. In all but one of the 12 cells which record the ratings of organization of recall of either story after a two-day or two-week interval, the mean ratings equal or exceed those obtained by these same indiividuals upon immediately retelling the story. Apparently the organizational quality of the post-interval retell was materially strengthened by the opportunity to retell the story immediately upon hearing it. It is only after an interval of two months that the ratings of organization fall below those obtained during immediate recall. The beneficial effect of immediately retelling the story upon the organization of post-interval recall seems to extend equally to all three age groups studied.

The ratings of organization of recall in children without IR never equalled the level achieved at immediate recall. Further, they tend to decline as the intervals become larger. In both story-groups, six-year-olds were assigned

relatively low ratings; they showed a severe slump after the two-week interval.

When the variance of organization ratings associated with age is compared with variance associated with recall interval, the factor of age is found to be a more potent determinant of organization than the various intervals employed in this study.

2. Sequence

Here, too, the age trends obtained from immediate recall of both stories are somewhat inconsistent (see Table 23). In Story B, the ratings of sequence of eight-year-olds out-distance those of the other two age groups, whereas in Story S it is the lagging position of the six-year-olds which is outstanding.

As in the case of the ratings of organization, those concerned with sequence of the post-interval recall of children with IR more closely resemble the ratings of their own immediate recall than the ratings of post-interval recall without IR. Again, the ratings of sequence of recall after two days or two weeks matches these same children's performance when they retold the story immediately.

Among children without IR, the ratings of sequence are lowest by far for six-year-olds and hardly distinguish between seven- and eight-year-olds. Variance in ratings associated with age is considerably greater than variance associated with recall interval.

3. Plot Strength

The ratings of plot strength of immediate recall point to the excellence of eight-year-olds (see Table 24). Post-interval performance of children who had retold the story upon hearing it is higher than that of children without IR, but substantially lower than ratings of the immediate retells. While the ratings of plot strength after the two-day interval tend to equal or surpass the ratings of the immediate retell, the post-two-week ratings show a decline below the IR level.

Ratings of plot strength decline sharply as the recall interval increases. Variance in plot strength ratings associated with length of recall interval is as great as variance associated with age.

4. Causal Reasoning

The immediate retells of both stories were assigned the highest rating of causal reasoning by a large margin (Table 25). In both stories, the eight-year-olds' retell excelled. When these same children were asked to retell the story after an interval, the ratings of their post-interval recall of both stories remained high following the two-day interval and continued at the same level following two weeks in the case of Story S but not Story B. Following the two-month interval the ratings of causal reasoning dropped sharply. The ratings of causal reasoning were higher for children with IR than without IR following the two-day and two-week intervals. After two months, differences between the two groups dwindle.

Ratings of causal reasoning in children without IR yielded progressively lower values following longer intervals. Similarly, ratings were correlated with age. In both story-groups, variation in ratings associated with recall interval exceeded variation associated with age.

SUMMARY

The results of this study of narrative recall among six-, seven-, and eight-year-olds indicate that eight-year-olds are markedly more effective in their processing of a narrative. Their immediate recall of stories is much fuller than that of the younger children studied. Variation in performance among the age groups was found to be greatest at the point of immediate recall. Following the shortest experimental interval (two days), variation in performance among age groups diminished because of the sharp decline in recall among the eight-year-olds from the point of immediate recall.

With the passage of time, the narrative recall of seven- and eight-year-olds becomes increasingly similar. Both of these age groups suffer a sharp decline in performance at a point in time beyond two weeks but before two months. On the other hand, the sharpest decline among six-year-olds occurs earlier--somewhere between two days and two weeks. Thus, among the age groups studied, the most distinctive feature of the eight-year-olds was their outstanding immediate recall. The performance of the six-year-olds was distinguished by the shorter duration of their narrative recall.

The opportunity to retell a story immediately upon hearing it had a generally facilitating effect on subsequent recall. Performance in all age groups and following all experimental intervals benefited from immediate recall. The influence of age on recall is heightened by providing opportunity for immediate recall.

The age and time-interval gradients also indicate that in the case of one story the influence of age on performance is more decisive when the more integrative units, major elements (rather than information bits), serve as the unit of analysis. In addition, the effect of opportunity for immediate recall appears to be greater when the integrative units are used to assess retention.

These findings indicate that even within the short developmental span of this study (age six to eight years), the focus of developmental change in narrative recall shifts as a function of age. Seven- and eight-year-olds differ most in encoding a narrative whereas the largest difference between six- and seven-year-olds is in storage. Macro units of analysis (major thematic elements) more sharply differentiate age levels of performance than do micro units (information units).

No sex differences were found in performance. Nor did it matter whether the sex of the hero of the story matched the sex of the subject.

Analysis of the children's response to questions posed following their post-interval recall indicates, not unexpectedly, that the length of the interval had a decisive influence on the recall of specific detail. It is of interest that some story elements which were relatively infrequently included in the children's own recall were nevertheless shown to be remembered in their response to questions. This would appear to suggest that at least some of the differences between the recall of eight-year-olds and six-year-olds may not so much be a reflection of differences in memory as differences in what they include in the retelling of the story.

Examination of the recall of each major element as a function of age revealed strikingly similar patterns of retention for the three age groups. All three age groups recalled the same, seemingly most salient items. With increasing age, additional items are recalled along with the core elements. Older children, more often than younger children, remember elements which set the stage for the story, describe the hero's feelings in the course of his search, provide additional details regarding the search and explain more fully how the plot is resolved. When the retention of each age group is examined following progressively longer intervals, we find a decline in the frequency of elements which overlaps considerably with differences in frequency associated with age.

Qualitative assessment of the children's responses were made by means of rating scales pertaining to organization, sequence, plot strength, and causal reasoning. The scores derived from all four scales were found to be related to both the age of the children and the length of the interval. However, the strength of the association with these two factors varied from scale to scale. The factor of age was more potent in influencing ratings of organization and of sequence. Ratings of plot strength showed as much variance associated with

interval length as children's age. The quality of causal reasoning was more affected by interval length than it was by children's age.

By comparing the performance of children of different ages and assigned to different interval lengths, it is possible to examine the relative influence of these two factors. The ratings of organization and of sequence among six-year-olds who were asked to retell a story immediately upon hearing it are no different from the ratings assigned to eight-year-olds who retold the story two months after they had heard it. On the other hand, the ratings of plot strength and of causal reasoning manifested by the immediate recall of six-year-olds were higher than those given to eight-year-olds who retold the story after a two-month interval.

APPENDIX A

DATA GATHERING INSTRUCTIONS AND RECORDING PROCEDURES

BANK STREET COLLEGE OF EDUCATION
Research Division

Story # I _____
#II _____

Child's Name _____

SESSION I

Date _____ Room _____

Tester _____

Time (start) _____
(stop) _____

Tape # _____ side A _____
side B _____

Child's ID # _____

Sex _____

Birthdate _____

Ethnicity _____

School _____

Grade _____

Teacher _____

SESSION II

Date _____ Room _____

Tester _____

Time (start) _____
(stop) _____

Tape # _____ side A _____
side B _____

Condition Codes

blue - girl w/ retelling
pink - girl w/out retelling
yellow - boy w/ retelling
green - boy w/out retelling

BANK STREET COLLEGE OF EDUCATION
Research Division
1973-74

Child's ID # _____
Name _____

RNM Study
Procedure

Session I

I WOULD LIKE YOU TO HELP ME WITH A JOB. I WANT TO FIND SOME STORIES CHILDREN YOUR AGE WOULD LIKE. I WILL PLAY A STORY ON THE TAPE RECORDER. AFTER IT'S FINISHED, TELL ME IF YOU THINK IT'S THE KIND OF STORY CHILDREN YOUR AGE WOULD LIKE. READY? ....O.K., I'M GOING TO DO SOME WORK WHILE YOU LISTEN.

If child asks why story is taped: WE TAPED THE STORY BECAUSE I AM SEEING SO MANY CHILDREN THAT I WOULD GET TIRED IF I READ IT EACH TIME.

--- E. turns on tape recorder with story ---

NOW I'D LIKE YOU TO VOTE ON THE STORY. BUT FIRST, LET'S SEE HOW MUCH OF THE STORY YOU REMEMBER. YOU TELL ME THE STORY.

Contingencies: (check only if applicable)

___ If child refuses: JUST TRY. WHATEVER YOU REMEMBER. FROM THE BEGINNING.

___ Still refuses: TELL ME THE STORY, JUST AS IF I'VE NEVER HEARD IT.

___ If child still refuses or is silent: DO YOU REMEMBER THE BEGINNING?

___ Still refuses: SHALL I START IT FOR YOU? REMEMBER IT'S ABOUT THE LITTLE GIRL/BOY WHO LIVES IN THE CITY....(AND HOW SHE/HE WENT TO SCHOOL).

___ If the child gives a skeletal summary: TELL ME MORE. HOW DID THE STORY BEGIN?

___ Fuller, but still incomplete retelling--omits some salient detail: IS THERE ANYTHING ELSE IN THE STORY YOU REMEMBER?

___ Fuller presentation but stops at some point: THEN WHAT HAPPENED?

___ Direct question re story content: avoid answering--a shrug perhaps--or IT DOESN'T MATTER. JUST GO ON. If persists, answer the question.

ANYTHING ELSE?....THAT WAS VERY GOOD. NOW, TELL ME IF YOU THINK THE STORY WAS A GOOD ONE FOR CHILDREN YOUR AGE. DO YOU THINK THE STORY IS GOOD, BAD, OR SO-SO.... HERE'S A PIECE OF PAPER FOR YOU TO MARK--TO MAKE YOUR VOTE OFFICIAL (ballot). THANK YOU VERY MUCH. YOU'VE BEEN A GREAT HELP TO ME. I'D LIKE TO GET YOUR VOTE ON ANOTHER STORY SOMETIME, O.K.?...(rewind tape)

BANK STREET COLLEGE OF EDUCATION
Research Division

Child's Name _____
Child's ID # _____
Session I or II (circle one)

RNM STUDY

1. Child's response to session:

___ interested, curious
___ matter-of-fact
___ distracted, lack of interest
___ non-cooperative, wants to leave

2. Child's consistency of response (as rated above):

___ consistent (as rated above)
___ some variation
___ considerable fluctuation

3. Amount of cueing: (while retelling)*

___ very little, responds without much urging or cueing
___ average urging and cueing
___ much urging and cueing

4a. Level of anxiety: (while listening)

___ fairly relaxed
___ slightly anxious
___ very anxious:
  ___ overtly anxious
  ___ overcontrolled

4b. Level of anxiety: (while retelling)*

___ fairly relaxed
___ slightly anxious
___ very anxious:
  ___ overtly anxious
  ___ overcontrolled

5a. Restlessness: (while listening)

___ quiet, not particularly restless
___ slightly restless
___ very restless

5b. Restlessness: (while retelling)*

___ quiet, not particularly restless
___ slightly restless
___ very restless

6. Diction:

___ speaks distinctly, audibly, intelligibly
___ occasional difficulty in understanding child
___ speech indistinct, inaudible

7. Evaluation of testing session:

___ consider session fair test of functioning
___ cannot be sure (annotate)
___ consider session inadequate test of functioning (annotate)

ANNOTATIONS AND COMMENTS:

___ responsive
___ alert
___ happy
___ distant
___ hostile or angry
___ awkward
___ bored
___ solemn
___ relaxed
___ despondent
___ difficult
___ fearful

Index of Attentiveness

5 concentrated
. on every word
.
.
4
.
.
.
3
.
.
.
2
.
.
.
1 extremely distracted, hardly listened

*Where applicable.

BANK STREET COLLEGE OF EDUCATION
Research Division
1973-74

Child's ID # _____
Name _____

RNM Study
Procedure

Session II - Page 1

I'VE GOT ANOTHER STORY I'D LIKE YOU TO HEAR AND VOTE ON. BUT, FIRST, LET'S SEE HOW MUCH OF THE STORY YOU HEARD LAST TIME YOU STILL REMEMBER. TELL ME THE STORY YOU HEARD LAST TIME.

Contingencies: (check only if applicable)

___ If child refuses: JUST TRY. WHATEVER YOU REMEMBER. FROM THE BEGINNING.

___ Still refuses: TELL ME THE STORY, JUST AS IF I'VE NEVER HEARD IT.

___ If child still refuses or is silent: DO YOU REMEMBER THE BEGINNING?

___ Still refuses: SHALL I START IT FOR YOU? REMEMBER IT'S ABOUT THE LITTLE GIRL/BOY WHO LIVES IN THE CITY....(AND HOW SHE/HE WENT TO SCHOOL).

___ If the child gives a skeletal summary: TELL ME MORE. HOW DID THE STORY BEGIN?

___ Fuller, but still incomplete retelling--omits some salient detail: IS THERE ANYTHING ELSE IN THE STORY YOU REMEMBER?

___ Fuller presentation but stops at some point: THEN WHAT HAPPENED?

___ Direct question re story content: avoid answering--a shrug perhaps or IT DOESN'T MATTER. JUST GO ON. If persists, answer the question.

ANYTHING ELSE?...THAT'S VERY GOOD. NOW, LET ME ASK YOU SOME QUESTIONS ABOUT THE STORY....(next page)

BANK STREET COLLEGE OF EDUCATION
Research Division
1973-74

Child's ID # _____
Name _____

RNM Study
Procedure

Session II - Page 2

Questions (annotate: S, Q, W, or DK)*

____ 1. WHY DID BILLY GO INTO THE WOODS?

____ 2. WHAT HAPPENED TO BILLY IN THE WOODS?

____ 3. WHAT DID BILLY FIND IN THE WOODS?

____ 4. WHERE DID BILLY FIND BROWNIE?

____ 5. WHAT WAS THE WEATHER LIKE OUTSIDE?

____ 6a. WHAT WAS BILLY'S MOTHER CARRYING WHEN SHE CAME INTO THE KITCHEN?

____ b. WHY WAS BILLY'S MOTHER CARRYING THE CANDLE?

____ 7. WHAT DID BILLY PUT IN HIS KNAPSACK?

____ 8. WHAT COLOR WAS BILLY'S SHIRT?

____ 9. WHAT DID BILLY'S VOICE START TO SOUND LIKE AFTER A WHILE?

____ 10. HOW DID BILLY GET THE COW TO FOLLOW HIM?

____ 11. WHAT DID BILLY DO TO STOP THE CAR?

____ 12. WHAT WAS THE NAME OF THE WOMAN WHO FOUND BROWNIE?

____ 13. HOW DID BILLY FEEL WHEN HE FOUND BROWNIE?

GOOD. NOW, LET'S LISTEN TO THE NEW STORY. I NEED TO HAVE YOUR VOTE ON IT AFTERWARDS.

--- E. turns on tape recorder with story ---

NOW, TELL ME IF YOU THINK THIS STORY WAS A GOOD ONE FOR CHILDREN YOUR AGE...HERE IS A PIECE OF PAPER FOR YOU TO MARK--TO MAKE YOUR VOTE OFFICIAL (ballot).

WHICH STORY DID YOU LIKE BETTER? _____

WHY? _____

THANK YOU VERY MUCH. YOU'VE BEEN A GREAT HELP TO ME.

* S = spontaneously given during retelling.
Q = correct response to question.
W = incorrect response to question.
DK = doesn't know answer.

BANK STREET COLLEGE OF EDUCATION
Research Division

Child's Name _____
Child's ID # _____
Session I or II (circle one)

RNM STUDY

1. Child's response to session:

___ interested, curious
___ matter-of-fact
___ distracted, lack of interest
___ non-cooperative, wants to leave

2. Child's consistency of response (as rated above):

___ consistent (as rated above)
___ some variation
___ considerable fluctuation

3. Amount of cueing: (while retelling)*

___ very little, responds without much urging or cueing
___ average urging and cueing
___ much urging and cueing

4a. Level of anxiety: (while listening)

___ fairly relaxed
___ slightly anxious
___ very anxious:
  ___ overtly anxious
  ___ overcontrolled

4b. Level of anxiety: (while retelling)*

___ fairly relaxed
___ slightly anxious
___ very anxious:
  ___ overtly anxious
  ___ overcontrolled

5a. Restlessness: (while listening)

___ quiet, not particularly restless
___ slightly restless
___ very restless

5b. Restlessness: (while retelling)*

___ quiet, not particularly restless
___ slightly restless
___ very restless

6. Diction:

___ speaks distinctly, audibly, intelligibly
___ occasional difficulty in understanding child
___ speech indistinct, inaudible

7. Evaluation of testing session:

___ consider session fair test of functioning
___ cannot be sure (annotate)
___ consider session inadequate test of functioning (annotate)

ANNOTATIONS AND COMMENTS:

___ responsive
___ alert
___ happy
___ distant
___ hostile or angry
___ awkward
___ bored
___ solemn
___ relaxed
___ despondent
___ difficult
___ fearful

Index of Attentiveness

5 concentrated on every word
4
3
2
1 extremely distracted, hardly listened

*Where applicable.

APPENDIX B

STORY B AND STORY S

Story B[1]

Betsy lived in the country. One night there was a terrible storm. The wind blew and the rain poured down. Betsy stood looking out the kitchen window. She was worried. She was worried about her little dog Brownie. Brownie loved to run out into the woods, but he always came home in time for supper. Tonight he hadn't come home. Where was he?

Bright lightening flashed over the woods and yard. Betsy squinted out the window, but the yard was empty. There was no sign of Brownie.

Betsy's mother came into the kitchen carrying a candle to light the room. There were no lights because the storm had knocked out the electricity. "Are you still watching for Brownie?" she asked Betsy. "Don't worry. He'll be back when the rain stops."

But Betsy could not stop worrying. She kept right on worrying until she fell asleep that night. In the middle of the night, she woke up and suddenly she remembered Brownie was lost.

Maybe he's come back, Betsy thought, jumping out of bed. She ran quietly to the back door and pulled it open. But Brownie wasn't there. The storm had passed and a light rain was falling.

Betsy looked at the kitchen clock. Almost five o'clock. Almost morning. Betsy had an idea! She would go out and look for Brownie right away.

Quickly she put on her jeans, her sneakers, and an old yellow shirt. I guess I better bring some stuff with me, she thought. In case Brownie needs something. Maybe he is hurt. He must be hungry. Betsy took her knapsack and put in an old towel, some bandaids, and a tube of first-aid cream. Then she packed a bag of Brownie's favorite dog food and a peanut butter and jelly sandwich for herself. She even remembered to take Brownie's leash.

It was getting lighter outside. Time to go. She carefully printed a note for her mother and father on an old envelope.

I'M GOING TO FIND BROWNIE. DON'T WORRY. LOVE, BETSY

She left the note on the table and ran out the door, across the yard, and into the woods.

Betsy walked quickly between the tall trees, calling, "Brownie! Here Brownie!" as loud as she could. Once she tripped over a tree root and fell down, smearing her hands and knees with wet leaves and mud.

As Betsy went deeper into the woods she had to walk more slowly. The trees grew closer together, shutting out the gray morning light. It was hard to see where she was going. But I'm not going to stop, she thought. Not until I find Brownie. She stumbled on, calling, and wishing she could whistle through her teeth. Brownie would probably hear a whistle a mile away. She stuck two fingers in her mouth and blew fiercely. But, as usual, she couldn't make a sound.

---

[1]In half of the renditions, the main character was Betsy, and in the other half it was Billy.

Suddenly, Betsy realized she was in a strange part of the forest. The trees were all black and bare as if they had been burned in a big forest fire. The ground was muddy and slippery. Suddenly, Betsy's sneakers slid on the slick mud and she fell headlong down a steep bank. The next thing she knew, she had landed in some oozy, slimey water.

I've fallen into a river, Betsy thought. She was terrified. She began to scramble and scrape at the muddy bank trying to pull herself out of the water. She clutched a branch, but it was dead and broke off in her hand. She fell back into the water. At last, she grabbed a tree root and pulled herself onto the bank. Slowly, on her hands and knees, she crawled up the muddy bank. When she reached the top, she looked back at the oozy water below. Please, Brownie. Please don't be down there!

Betsy walked on and on, in and out of the thick trees, scrambling through the bushes, calling, "Brownie, Brownie!" Her voice began to sound like the croaking of a frog. A very small frog with a sore throat. I wish I could whistle. I wish and wish I'd find Brownie, she thought.

Then, out of the corner of her eye, Betsy caught sight of something red. A patch of reddish something moving through the bushes. Betsy stopped still and stared. There! She saw it again between the trees not very far away. A reddish patch that showed between the branches....then disappeared.

What could it be? It couldn't be Brownie. He didn't have one single bit of red in his brown fur. Then Betsy heard a low, crashing sound ahead. Maybe it was some kind of animal--a deer? or a fox? It sounded like something large. Could it be a bear?

Betsy's heart began to thump hard. Her mother and father always said there were no bears here--none at all. But suppose, just suppose this was a visiting bear. One who just dropped in for something to eat???

Betsy backed away and listened again. The low crackling noise was getting louder and louder. Betsy tried to hide under a spruce tree, but its low branches were in the way. If she could only climb the tree, she would be safe. She struggled and pulled herself up into the tree. Then, she held her breath and listened. The crackling and crashing was coming nearer and nearer. Did bears climb trees? Could a bear smell her and know where she was hiding? Mooooooooo...

A cow! That was a cow mooing. One thing bears did not do was moo.

Betsy climbed down the tree. Where did the cow come from? Had one of Mrs. Meyer's cows gotten loose? Was the cow lost, like Brownie? Betsy pushed her way through the bushes toward the mooing sound. Suddenly there was the cow's broad face staring at her. A red and white cow, just like one of Mrs. Meyer's cows.

Betsy ran to the cow and hugged the warm, soft neck. "Hi, cow," she said, "Am I glad to see you. Don't worry. I'll take you back home. Just follow me, cow."

But the cow didn't move. It just stood there, licking its wide wet nose. "Oh, dear," thought Betsy. "How do you lead a cow?" Then she remembered the leash in the knapsack. "I know, she said. "I'll tie the leash around the cow's neck

for a collar." She fastened the leash around the cow's neck and tugged at the collar. The cow stepped forward. Betsy grinned and patted the cow's broad forehead.

"Good cow," she said. "If I could find you when I wasn't even looking for you, then I'm sure I'll find Brownie, too. Come on, let's find the road."

Suddenly Betsy noticed that the rain had stopped and the sun was shining. She didn't even feel cold or shivery anymore. She pushed her way on through the trees with the cow walking along behind her.

Suddenly Betsy heard a humming noise. It grew louder and louder, then faded away. "That's a car!" Betsy shouted. "The road must be just ahead, beyond those trees." Betsy tugged Cow through the last row of trees and came out on the wide gray road. And just beyond it was Mrs. Meyer's pasture. Several red and white cows were grazing in it.

"Come on cow," Betsy shouted. "Here's the road, here's your home."

Mrs. Meyer's car was just coming out of her driveway and slowly turning down the road towards Betsy's house.

"Hey, wait up," Betsy shouted, running after the car, Cow trotting clumsily behind. But Betsy's voice was worn out and Mrs. Meyer couldn't hear her. Desperately, Betsy stopped and stuck two fingers in her mouth and blew. A whistle came out--a real whistle!

The car slowed down and Mrs. Meyer poked her head out, looking back at Betsy. Betsy waved her hand hard. She could hear a dog barking in the car. Betsy ran to the car and there was Brownie, jumping excitedly on the seat and barking furiously. Brownie flung himself over the low door.

Betsy knelt in the road and hugged him hard. "Brownie, you're o.k., you're OK!" she said. "I've found you, Brownie!"

"Why, Betsy, <u>you</u> found my silly cow, Phloxie," Mrs. Meyer said. "These fat old cows got out last night and Brownie helped me chase them home...all but Phloxie. When the storm came, I was afraid to let Brownie go home. I couldn't call you on the telephone--the storm had knocked down the telephone lines. So I was just on my way to take Brownie home. I didn't want you to wake up and find him missing."

"Wake up? Jeepers, I've been up for hours and hours," Betsy said. "It must be afternoon by now."

Mrs. Meyer laughed as she let Phloxie into the pasture. "Why Betsy? It's not even seven o'clock in the morning. Come on. I'll take you home with Brownie. It's almost time for breakfast."

Betsy and Brownie jumped into the car beside Mrs. Meyer and off they went down the road towards home.

Story S[1]

Stephie lived in the city on the tenth floor of a tall apartment building. From her bedroom window she could see all the office buildings downtown and all the people scurrying towards them. She could even see the busses and trucks moving down the crowded streets. Most mornings when Stephie woke up she did not want to get out of bed. She liked to pull the blankets up around her shoulders and snuggle back under the covers. But today Stephie knew that she had to get ready for school--so she stretched and yawned and slowly put one foot down on the cold floor. Then she reached over to the chair where she had thrown her jeans and shirt the night before--as she pulled them on she looked around for her sneakers.

"Stephie," her mother called, "are you getting dressed?" But Stephie didn't hear her mother call. She was busy looking at her toes. And thinking. Why do toes come in different sizes?

"Hurry up, Stephie," her mother called again. "You'll be late for school." But again Stephie didn't hear her mother call. She was busy looking at her socks. And thinking. Why do socks fit either foot but shoes don't?

"Stephie," her father said. He was standing right at the door of her room and Stephie did hear him. "Your mother has called you two times, Stephie. Come to breakfast right away." "I'm sorry," Stephie said, "I was busy thinking."

"Can't you think while you dress?" said her father. "Here, why don't you wear your green sweater? We'll have to be as fast as lightning."

"I'll eat my breakfast fast as lightning too," said Stephie. But she didn't. She was busy daydreaming and blowing milk bubbles through her straw. And looking out the window.

Stephie's mother said to her "Stephie, you're just trying to be slow. If we didn't drive you to school and you had to get there on time by yourself, maybe you wouldn't fool around so much." Stephie lived too far away from school to walk.

She was in the second grade. Next year she would be able to take the city bus and go to school by herself. But this year, her parents drove her to Adams School on their way to work each morning. Stephie's father said, "I sure wish we lived nearer and Stephie could go to school by herself. Someday maybe we won't wait for you, Stephie. What would you do then?"

"I'd go by myself," said Stephie as her parents hurried her down in the elevator and into the car. "I could take the bus just like all the people who go to work --and I'd get off at the street where my school is."

---

[1] In half of the renditions, the main character was Stephie, and in the other half it was Stevie.

That night, before Stephie went to sleep, she thought, "I'll show them. Tomorrow I'll be fast as lightning."

The next morning, Stephie woke up without being called. "I will be as fast as lightning all day," she thought to herself. "Starting right now." As she quickly dressed and brushed her hair, she noticed how quiet it was. She hadn't heard anyone calling her. No one at all. She ran into the kitchen but no one was there. There was no breakfast on the table and everything had been put neatly away. It was very, very quiet. Suddenly Stephie thought, "They've gone. They got tired of calling me and went to work without waiting for me--just like Dad said they would. I'll have to get to school by myself."

Stephie felt like crying, but she didn't. "I don't care," she told herself fiercely. "And I don't want any breakfast anyway." She grabbed a banana and began to eat it as she rushed out the door. "I'll take the bus and show everybody I can get to school by myself." She pulled on her coat in the elevator and ran out of the door of her building. As soon as she was outside, she remembered that she had forgotten her school bag. She rushed back up to her apartment and grabbed it. Then she decided that she needed some pencils and a bunch of rubber bands which she found in her desk drawer. She also remembered the rubber ball that she liked to play with after lunch--she stuffed them all in her schoolbag. Now she was really set for school, so she marched outside to find the bus. When Stephie reached the street corner the light turned red. As she waited impatiently for it to change, she saw the bus coming down the street towards her. "Hurry, light, please change to green." Finally it did, and Stephie crossed the street just as the bus pulled up. Quickly she hopped on. As she looked for a seat, the bus driver called out, "Hey, where's your money, young lady? You have to pay to ride a bus."

"Oh, how much is it?" Stephie asked.

"Twenty-five cents," the driver said. Stephie searched through her pockets. Her hands began to shake and she felt her throat get tight. She could only find three pennies. She pulled them out and showed them to the bus driver. The bus had already started to move down the street and she was afraid. But when the driver saw that she didn't have enough money, he smiled and said, "That's okay, you can owe it to me." Stephie thanked him and moved towards the back of the bus. There were no more seats and the aisle of the bus was crowded. As more and more people got on, Stephie felt smaller and smaller. Suddenly she wondered, "Is this the right bus?" She couldn't see through the crowd and wondered where she was. Then, as the bus slowed down, she thought she heard the driver call out "Adams." Were they already at Adams School? They seemed to have gotten there so fast. Stephie hurriedly pushed her way through all the people to the door and jumped off the bus.

Stephie looked around. She couldn't see Adams School anywhere! All she could see was a tall iron fence with a lot of grass and trees behind it. And a sign on the fence that said ADAMS PARK. It was Adams <u>Park</u>, not Adams <u>School</u>!

Stephie didn't know what to do. She felt very scared and very alone. She looked up and down the street. But she didn't see anyone or any place that she knew. She felt chilly shivers chasing around inside her; she felt like crying.

Then she began to think. Didn't Adams Park come before Adams School? If she kept walking the same way the bus went, wouldn't she come to her school? She watched the bus slowly moving down the street and then started off after it. But as she walked and walked she wondered, "Am I getting closer to the school or am I just getting more and more lost?" Stephie walked faster and faster until she was running.

She ran all the way to the next corner. As she stood waiting for the traffic light to change, she looked up and saw a flag flying on a pole in the distance. "Hey," she called excitedly. "That looks just like the flag in the Adams schoolyard." Stephie ran in the direction of the flagpole. When she finally reached it she looked around to see if her school was near by. What she saw was not her school but the post office! Yes, she reminded herself, post offices have flagpoles too. By now Stephie was tired and out of breath so she sat down on the steps in front of the post office and wondered what to do next. Where could Adams school be? Then she remembered something important. One day when she was in kindergarten, her class took a trip to the post office and it was only a short walk from her school--so she must be near--but which way should she go? She walked to the curb and looked off in the distance. It was then that Stephie spotted another flag flying from the top of a pole. "That one must belong to Adams school," Stephie shouted. She ran faster than ever in the direction of the flagpole. This time she was right! Next to the flagpole was Adams school. Stephie smiled--she had done it! She had found the school all by herself! Her friends wouldn't believe her--but where were her friends? No one was in the schoolyard. The school looked closed and empty. "Maybe everyone's inside," Stephie thought.

But Stephie knew that something was wrong. Slowly she walked to the big door and pulled the knob. But the door didn't open. Stephie pushed the doorbell. She could hear the bell ringing inside the building, like a scary alarm. But no one came.

Stephie felt hot and sticky. Tears were running down her face. She sat down on the steps and buried her head in her arms and cried. What could she do now? Still sniffling, she decided she would have to find a bus to take her back home. But she didn't have enough money and she really didn't know where to find the right bus.

As she stood up, she heard someone shouting "Stephie! Stephie!" There was her mother, running up the school walk followed by her father. "Stephie, everyone's looking for you--even the police!" Stephie's mother said. She hugged Stephie so hard that Stephie could hardly breathe. Her father was hugging her too. "Hey, Stephie," he said, "are you okay?"

Her mother was still holding her tightly. Stephie's voice was muffled by her mother's shoulder and the tears. "Sure," she said. "I'm okay. I tried to do everything right today. I almost did! I even found my way to school after I got off the bus at the wrong place. But everybody else forgot to come!"

"Stephie," said her father, "they didn't forget to come. Today is Saturday, Stephie. No school on Saturday, remember?"

Everybody was laughing as they all went back to the car. Even Stephie. "Anyhow" she said, "I got to school all by myself."